

# THE MONIST

A QUARTERLY MAGAZINE.

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CHICAGO:

THE OPEN COURT PUBLISHING COMPANY.

1895.

THE MORRIS

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1894

# THE MONIST.

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## LONGEVITY AND DEATH.<sup>1</sup>

IN CONNEXION with Professor Weismann's very noteworthy essay on *Death*, in my estimation one of the most important contributions to the literature of Natural Selection since Darwin died, it may be of interest if I here quote some passages from an unpublished essay of mine written in 1875 upon the same subject and dealing with it from somewhat the same standpoint—that of adaptation. It will be noticed that these passages for the most part refer to points which are unnoticed by Professor Weismann, and hence may be of use in any further consideration of the problem. The essay was not originally published, as Mr. Darwin, though he expressed his approval of the views it contained, considered them of so “speculative” a character as to render this at that time unadvisable. The passages to which reference has been made are here extracted verbatim.

Mr. Ray Lankester, in his valuable little treatise on *Comparative Longevity*, points out two or three causes which he thinks must have been instrumental in determining for each species what he aptly designates the normal potential longevity of the individual. While

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<sup>1</sup>The late Mr. G. J. Romanes placed the manuscript from which this paper is printed among the notes and appendices for his forthcoming Part II of *Darwin and After Darwin*. He bade me exercise my discretion with regard to the inclusion of such notes in that volume, leaving me free to decide whether they should be published in that or in some other manner. In consenting to the appearance of the following pages in *The Monist* I wish to reserve the right of republication in such form as may seem desirable.—C. LLOYD MORGAN.

freely assenting to his opinions, I think there are other and still more important influences which he might have suggested—in particular that of Natural Selection.

If there is any conceivable way in which the agency of Natural Selection can be supposed to have assisted in determining the potential longevity of individuals, I think we have a right to conclude that the assistance so afforded must in all probability have been considerable, for Natural Selection, being of resistless power and constant operation, can scarcely be present anywhere without leaving good work behind it. Now we have, first of all, a strong antecedent probability that survival of the fittest must have had some share in determining the duration of life in individuals; for it is antecedently probable that so important a matter as the length of the individual's lifetime should in some way or another bear upon the interests of the species.

But in what way can the potential longevity of the individual affect the interests of the species? I think it may do so in several ways, as follows:—

Those species whose ancestral types have frequently been required to vary would have gained much during the history of their descent, by having their constituent individuals short-lived; for in this way a comparatively great number of opportunities would have been afforded for the requisite variation to arise: in other words, a comparatively great number of variations would have occurred in a given time. Hence it seems natural to infer that it is in the power of Natural Selection to affect the *curtailment* of individual life, wherever such curtailment would be of advantage to the species, that is to say, wherever *flexibility* of type is required. Of course, length of life is not the only factor which determines flexibility of type. There are at least three other such factors, (1) the period at which puberty sets in, (2) the number of times the individual breeds during its lifetime, and (3) the number of young which it bears at each time of breeding. Nevertheless, it is true that the length of life is a highly important factor, because, if the individual is short-lived, it becomes a necessary condition to the continuance of the species that parturition should be frequent. Or, more generally, there must be more



or less of a direct proportion between the potential longevity of every species and the frequency of parturitions characteristic of that species—if not also of the number of offspring in each. Now, as Mr. Lankester has pointed out, there is, as a matter of fact, a highly remarkable correlation between potential longevity in the individual and frequency of parturition, as well as of numbers constituting the litter which are distinctive of the species. This correlation he attributes to generative expenditure acting directly to the curtailment of life; but in holding this view, I suspect that he is mistaking cause for effect. I do not think it is generative expenditure which causes curtailment of life, but that it is curtailment of life by Natural Selection which causes the high generative expenditure within the lessened period. It is as though all the conditions needed to secure flexibility of type were adaptively associated in these species which have survived in a comparatively fluctuating environment. Moreover, it is worth observing that all the organisms to which Mr. Lankester ascribes a practically unlimited potentiality of life, are organisms which, as far as we can judge, must always have been exposed to uniform conditions of life.

The essay then proceeds to consider death in general as due to adaptive causes, and concludes as follows :

It is too often forgotten by evolutionists that natural selection can only operate before and during the time at which an organism is capable of procreation. After the breeding age is past, the influence of natural selection is entirely withdrawn. For although it is true that a vigorous old age conduces to the longevity of the individual presenting it, he is not able to transmit his senile qualities to progeny, and thus survival of the fittest—which works for the benefit of the race—is in no way concerned with them. Of course senile vigor may be a residual effect of youthful vigor, and thus, as it were, an accidental result of natural selection; but *per se* it is not a result for the direct attainment of which natural selection can ever operate.

So far as this principle is concerned the organism may be regarded as dead so soon as it has ceased to procreate, and although one of the sequelæ of natural selection operating on earlier ages

may be that of increasing the chances of vigor in old age, this, in relation to the objects of natural selection, is merely an incidental concomitant.

Consequently, any diseases which belong to old age will be allowed by natural selection to commit their ravages without let or hindrance, while diseases which belong to all earlier periods of life will be, as far as possible, eliminated. The way in which they are eliminated is by allowing those who succumb to them to die, and thus allowing those who do not succumb to breed—so bequeathing to progeny constitutions which are capable of resisting disease. But all such diseases as apoplexy, angina, etc., which belong chiefly to old age, are quite beyond the province of natural selection to control, for it matters not to the species how soon after the last offspring has been produced the parent organism dies.

Now, if this applies to disease, it must apply equally to normal physiological processes. If natural selection can inspire no hindrance to those abnormal tissue-changes which end in apoplexy or angina, neither can it inspire any hindrance to those normal tissue changes which lead to death from general decay, or, as it is said, from mere old age. Throughout its life there is perpetually going on in the individual organism a struggle between the processes of waste and repair. Before and during the age of procreation survival of the fittest is in close alliance with the forces of construction. But as soon as the age of procreation is passed, this alliance ceases; the forces of destruction are allowed full play, and therefore more or less rapidly the balance between them and their antagonists is overthrown; the organism dies.

Now, if these things are so, it follows that there ought to be a general relationship observable in all species between the age at which procreation ceases and death supervenes. In other words, individuals of species which breed early, or breed often, ought to die young. The only object which natural selection has in favoring the forces of construction before and during the age of procreation being that of securing the fittest progeny, so soon as the individual has yielded a sufficient number of such progeny, he has ceased to be an object of any concern to natural selection. Therefore, as I

have just said, individuals belonging to species which breed early, or breed often, ought to die young. And this, generally speaking, is what we find to be the case. Indeed, it is the only general principle that can be found to hold throughout both the vegetable and animal kingdoms.

Prof. Ray Lankester, in his essay already alluded to, ascribes this correlation to exhaustion of vital energies in a measure proportional to the amount and rate of propagation. But according to the views here advocated, the correlation is really due to natural selection, and, as such, has a directly adaptive meaning.

GEORGE J. ROMANES.

## TO BE ALIVE, WHAT IS IT?

THAT subtle, matter-quickenning something we call life, in what does it consist?

The mere mention of its name conjures up a vision of all that is most marvellous in the sense-revealed universe. For the most part it is regarded as a mystery transcending naturalistic conception; as an alien influx into nature, baffling scientific interpretation. Philosophers, ancient and modern, have declared the vivification of the material composing living beings to be the work of an altogether exceptional, hyperphysical agency. And eminent scientists, satisfied that spontaneous generation nowhere occurs, have conjectured that the germ of life has meteorically descended on our planet from the skies.

It is true, physiologists, not long ago, entertained the hope of solving the problem of vitality by means of the hypothesis of atomic mechanics. It has, however, become more and more evident that vital processes, even of the simplest kind, are not of the mechanical order. But, if not through mechanical agency, through atomic push and counterpush, how then are the activities, the purposive movements of life effected?

The scientific spirit revolts against the facile subterfuge of attributing the occurrence of any obscure event in nature to the miraculous intervention of any kind of extraneous power. It can find restful satisfaction in no sort of conflict between incommensurable agencies. It irresistibly urges towards unification, towards a monistic interpretation. The ever-present intuition, guiding and inspiring scientific investigation, is the firm belief that nature is all-embracing,

that all her phenomena without exception are interdependently connected, are forming part of one all-comprising cosmos.

This steadfastly in mind, the attempt shall here be made, first to gain a scientifically justified and logically consistent physical basis, upon which a naturalistic conception of vitality can be reared; and, then, to show to what special physical conditions vital activities and vital organisation owe their existence.

#### THE PHYSICAL BASIS.

However inscrutable the vivification of lifeless stuff may appear, the rest of nature, things inanimate, have in a manner become intelligible to us. Thunder and lightning, earthquakes and plagues, are no longer regarded as wilful visitations of living Gods; of Indra or Jahve, of Zeus or Thor, of Ahriman or Jove. We view them as necessary outcomes of the present order of nature. And, therewith, they have lost most of their terrorising influence over us. We can tell whence the wind cometh and whither it goeth; and do not stand confounded before the birth of the storm-laden clouds. We know what "shakes the old beldame earth, and topples steeples and moss-grown towers." And we do not shrink from waging war against all manner of pestiferous scourges. No such portentous heart-beats, as beset the mediæval conscience of Petrarch, oppress us when we ascend heaven-scaling Alps, and behold at our feet the glory of the far-stretching, sunlit landscape. To us the woods bear a familiar aspect. No satyrs or fauns, no mischievous elves or gnomes haunt their grateful shades. Overhead the sun sheds his majestic light more reliably by far than when all-seeing Helios drove him along. And universal gravitation holds the starry host more trustfully within ordered cycles than could any divine volition of their own.

Our dread of outside nature seems to diminish in measure as we become convinced that nothing vivifies it from within; that its divers constituents, its heaven and earth, its winds and waters, its stocks and stones, are in no way volitionally actuated. The sense-apparent properties of things once probed, we fear not that they will turn upon us with untoward powers. Instead of cringing be-

fore their hidden terrors, we proudly move among them as masters, controlling and utilising their sundry efficiencies. Unlike our savage ancestors, whose religion consisted chiefly in attempts at propitiating malignant influences abroad, we snugly-settled optimists have almost come to believe with *Candide* that this is indeed the best and most benignant of worlds.

Yet such seemingly close familiarity with the outside universe, and the apparent recognition of its nature, is after all but a fond illusion. All things have in truth become far more enigmatical, far more foreign to our understanding, since we fail to discover any analogy between inanimate activities and our own volitional performances. The saying of Socrates, that physical nature must ever remain incomprehensible to us, while we are competent to recognise our own mental and moral being, while—as he expressed it—the command of the Delphian god, “Know thyself,” could and should be obeyed; this agnostic declaration on the part of the wisest of ancients regarding the physical side of nature, may after all not be so completely off the mark as most scientists of the present day would be inclined to acknowledge.

Gravitation, though its mode of occurrence is mathematically precise, acts really by force of something not remotely so well known to us as our own volition. The evolutionary drift of the endless preparatory stages of elaboration through which the original stuff of our planet has passed before it became fit to serve as a habitation for living beings; this physical becoming is infinitely less intelligible than the process by which we ourselves make things subserve remote ends. The forces that actuate and shape material things from within are indeed incommensurable with the activity by which we seize upon them from without, to put their given efficiencies to intelligent uses.

Our comprehension of matter and its forces, vicarious or symbolical as it necessarily is, is moreover limited by the scope of our sense-informed imagination. The astoundingly sensitive response of a lifeless wire to the lightning speed of the electrical influx, and to its slightest minutiae, is incomparably more perplexing to our conception, than, for instance, the rate of the propagation of

the immensely more sluggish current of activity along our living nerves.

Furthermore, it is obviously only by dint of co-natural congruency and sympathy that we come to understand the inwardness of any thing or event whatever. We are well enough aware what it inwardly means when some other living being is seen to be in an angry or in a pleased mood, to be laughing or weeping. But who can grasp with co-natural sympathy the inward meaning, the motive intention of a cyclone or an earthquake, of shining light or falling snow, of physical or chemical activity? We generally rest satisfied when we have ascertained that it all occurs in accordance with definite "laws"; that it all forms part of the "mechanism of nature," of a rigorous concatenation of "causes and effects."

But what scientist has the slightest inkling of that which really constitutes inanimate or physical activity? He calls it force, and believes it is something that can move or energise matter. He calls it energy, and imagines that this immaterial essence of activity—in truth a mere mental abstraction—can slide from one material compound into another, assuming protean modes of appearance. At times he calls it motion, without realising that "motion" is only a perceptual sign of ours for all manner of activities we have no power of intellectually assimilating.

In this helpless predicament some are bold enough to cut the knot by asserting that it is volition which here also is imparting motion to lifeless matter; moving it—as some maintain—from within as will of its own; or—as others will have it—from without by force of the will of some *deus ex machina*. But what legitimate analogy can be found between the conscious, aimfully directed movements of our appropriately organised living body, and the evidently unconscious, purposeless motions of things in which no perceptible sign of animation or volitional direction can be detected?

And if our intellect is powerless to assimilate inanimate or physical activity with what it is cognisant of as animated or volitional activity, our senses fail to yield us adequate information regarding even the effects of such physical activity. We offer our sundry sensibilities as delicately graded reagents to the sense-affecting agents



of the outside world. How marvellous the definiteness of our vision, its close inspection and distant reach, its refined distinction of shades and colors! And what a world of sounds is revealed to our hearing! How sensitive our feeling to grades of heat and cold, to degrees of resistance and weight! How discriminative our tasting and smelling! Yet lifeless glass-lenses, photographic plates, vibrating membranes, thermometers, scales, and chemical reagents innumerable outdo us in the recording and penetration of distinctions obtaining in the material universe. Who can tell what marvels of nature may be taking place beyond the reach of our living senses, even when supplemented by artificial aids? How utterly sense-transcending, for instance, the intimate constitution of bodies, or the real properties of the interstellar medium that transmits to us life-supporting heat and light, and is the bearer of that strange, terrific power we have learned to harness in batteries and dynamos, without the least conception of its real nature.

In order to realise what kind of world it is, in which we move and have our being, it is well not only to live in the light of knowledge attained, but at times also to remind ourselves of regions outlying and unrevealed.

The activities, by whose agency is fashioned in extra-conscious existence that marvellous piece of workmanship we call physical nature, are at least to some extent immediately known to us by means of their effects on our own being, by means of their sense-affecting efficiencies. But of what nature is the existent that proves itself thus active? Activity cannot possibly be self-sustained. It must be the activity of something. Even in Wonderland the "grin" cannot be fancied without the "cat." Just as little can we conceive activity existing and persisting without an acting agent.

What then has our present science to say about this irreducible something which is the acting agent in nature? It generally teaches that the physical universe consists of matter and force; or, more technically expressed, of masses possessing kinetic or potential energy; that is of a statical and a dynamical principle, of a permanent existent serving as vehicle to varying modes of activity, manifest as so many modes of motion or commotion.



Now it is clear, that what affects our senses are only so many modes of activity of that which is active. Peculiar modes of activity affect our sense of touch, other modes our sense of sight, others again our sense of hearing, and so on. And it is obviously only by force of these sundry modes of activity that the acting agents of the physical world make their existence and peculiarities known to us. We cannot rightly say that the existing agents are unknown, for we actually know them by dint of the effects they work in us through their characteristic activities; activities which are essential to their existence, which in fact constitute them specific existents distinguishable from one another. Moreover, the various modes of our sensibility, through which on stimulation we recognise physical existents, are themselves phylogenetically inwrought effects of their activities; or, more correctly perhaps, they are reactive responses attuned to their divers modes of stimulation.

Still the activities are not themselves the acting agents; the properties of the substance not themselves that substance. We cannot rest satisfied with mere physical phenomenism. We are naturally and forcibly led to believe that activities emanate from efficient existents, or so-called bodies. And this because the presence of what by means of our percepts we infer to be such induces changes in other suchwise inferred bodies, and in ourselves as sole consciously realising reagent.

Right here, however, the current conception, that it is the *actually perceived* universe which consists of force-endowed bodies, or masses possessing kinetic or potential energy; this conception gives rise to a knot of perplexities difficult to disentangle. It is clear, as already stated, that all we perceive of physical nature, all its so-called objects, together with their changes, are really effects induced in us solely by its activities. The entire perception, so long as it lasts, is out and out a stimulated effect of a group of unremitting activities. There is nothing induring, nothing whatever substantial in it. Yet we are wont to detach from this perceptual group of activity-induced effects a comparatively changeless component which we then wrongly conceive as being itself a material body or substance,

constituting it an unchangeable vehicle for less stable and subsiding components of the perceived activities.

When the percept "gold," for instance, is awakened in us by a definite group of physical activities, we generally pick out some of the less changeable of these activities, such as resistance or inertia-force, weight or gravity-force, degree of cohesive force, specific modes of chemical force or reaction, and so on. These less changeable activities we install as the permanent substance "gold," while we allow less stable activities, mainly degrees of molar and molecular motion, to pass over into other physical bodies in the form of what we call energy, an immaterial something deemed to be convertible into other modes of this same immaterial something.

This perceptual and therewith mentally symbolical realisation of extra-conscious things and events, constitutes the principal puzzle encountered by scientific interpretation. Physical science itself, when it goes cautiously to work, likewise only *infers* the existence of bodies, or permanent existents. And this solely by dint of mutual relations obtaining between perceptible activities. When, moreover, it seeks to rid itself of all merely inferred existence, it is apt to become reduced to mere objective phenomenism, and at last to nothing but perceptual space and time-relations. Such pure phenomenism is then meant to be utterly devoid of realistic inferences, devoid of substantiality and efficacy, of actual matter and force.

Yet, however masked, there persist, even here, in mathematical physics of the most abstract kind, inevitably, the old irreducible realistic postulates, the common-sense assumption of force-endowed existents. For those physical percepts, generally called bodies for the sake of intelligibility, whatever space, large or small, they may occupy in perception or conception, are here necessarily inferred to act upon one another in specific ways, so as to induce definite changes in their space and time-relations. Without this realistic assumption of force-endowed existents,—perceptual phenomena conceived as such in this instance,—physical phenomenism would be incapable of establishing any relation whatever between the perceived changes in the position and velocity of percepts, which changes constitute the sole subject-matter of its investigation.

And it need hardly be mentioned that this attribution of efficacy and therewith substantiality to mere transitory percepts, which in fact and also according to the adopted theory are wholly unsubstantial and forceless ; that such procedure involves physical phenomenism in outright contradictions.

Is it not far more justifiable to assume at once that the feeling of effort and resistance we experience when endeavoring to act upon what in conscious representation appears as an immaterial and forceless percept, corresponds in reality to a force and counter-force exerted by physical existents subsisting outside our consciousness? And as our own efficient being in this experience belongs to physical nature as well as other existents acted upon and reacting, we may legitimately infer that all physical existents have power to act upon one another so as to induce changes in their respective dispositions and constitutions.

Physical science, of a less subtle kind than pure phenomenism, is wont to start frankly with the realistic common-sense assumptions. It conceives, however, the physical existents and the activities they display, as two separable factors in nature. In so doing it runs itself into wholly contradictory conclusions. The physical world is thus held to consist, not of force-exerting agents, but of inert, force-driven particles ; not of existents possessing inherent energy, but of such possessed by energy *ab extra*. This modern conception of modes of energy being transferable and interconvertible, when meant to express an actual fact in nature, stands seriously in the way of a correct interpretation of physical occurrences. It logically reduces the world-material, that forms the endlessly diversified and power-endowed universe, to an utterly passive *caput mortuum*, to a mere space-occupying, qualitatively indifferent vehicle of activities and qualities, believed to be imparted to it by being simply knocked about from without by an immaterial factotum, called energy.

In the whole range of thought there exists no more fanciful belief than that which makes so utterly inconceivable an abstraction as pure energy or motion detach itself from a moving mass to seize upon another mass which it thereby energises.

That there obtains in nature a strict reciprocal equivalence, or invariable quantitative relation, between causes and effects, between changes occurring in interdependent groups of physical existents, of this there can be no doubt. But these changes are one and all the outcome of powers inherent in the manifesting agents, and no-wise merely wrought upon them from without.

All physical existents of which nature is composed tend to equilibration of their respective powers or energies. This process of equilibration never deviates from a strictly quantitative as well as qualitative correlation of the changes through which it is attained. The quantitative aspect of these changes is conceived as equivalence, however qualitatively disparate they may prove to be. So much mechanical impact of physical existents induces exactly so much heat-commotion.

Nature is not composed of indestructible matter on one side, and indestructible energy on the other; but of perceptually distinguishable physical existents subsisting under strictly interdependent relations to one another, quantitatively and qualitatively.

We become consciously aware of physical existents solely by their sundry characteristic activities stimulating our senses. And just as certain as these activities merely *stimulate* our senses, no-wise passing over into our being, just as certain do these same activities merely *stimulate* changes in other physical compounds without passing over into them.

The greatest triumph of the purely mechanical theory is supposed to have been achieved in the kinetic theory of gases. Yet all the astounding velocity attributed to gas-molecules would speedily come to a standstill, if they were not themselves held to be intrinsically endowed with the master-spring that keeps it all going. For in the words of Newton, "if two equal bodies meet directly in vacuo, they will by the laws of motion stop where they met, and lose all their motion and remain at rest, unless they be elastic and receive new motion from their spring."

It is solely by theoretically endowing the gas molecules with perfect elasticity, that is with an inexhaustible intrinsic power, mechanically equivalent to the entire kinetic energy with which they

ever so often and ever so forcibly collide, that the physical phenomena displayed by gases can be mechanically interpreted. Here the kinetic energy lost by impact is ever newly reproduced by a force inherent in the molecules themselves. Such kinetic energy, therefore, instead of being externally imparted to them, is actually an outcome of their own intimate and inalienable nature.<sup>1</sup>

This state of things being considered as obtaining between the molecules of gases, there is no reason why it should not likewise obtain between solid masses, made up of the same molecules. Therefore, on mechanical impact of two solid bodies the resulting commotion of their constituent particles, felt by us as heat, is just as much an outcome of stimulated elasticity, as was held to be the case in the gaseous state. Only here cohesion acts as a counterforce.

As, even in these foremost examples of mechanical activity, there occurs evidently no actual transmission and conversion of energy, but only equivalent modes of action and counteraction, it stands to reason that this holds good all the more regarding other modes of activity, such as gravitation, cohesion, chemical affinity, magnetism, and so on.

We shall never come to appreciate the wondrous potencies and potentialities inherent in physical existents, unless we relinquish the conception of transmitted and interconvertible modes of energy. All percepts, which constitute for us the characteristics of definite physical existents and their activities under definite conditions, will reappear whenever these existents are brought under the same con-

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<sup>1</sup> That which goes by the name of kinetic energy is perhaps the strangest of all modes of energy. That a physical existent should be able to acquire unlimited amounts of power to change the state and constitution of other physical existents merely by traversing more space in less time—space and time being conceived as themselves utterly forceless—this fact more than any other brings home to us how much of essential efficiency in nature remains unexplained.

How can an activity, an effect-producing efficiency, impressed upon a mass, impressed upon it without working any change whatever in its own intrinsic condition, how can it become a function of forceless space and time? This would seem to indicate that what in our perception appears as forceless, empty space corresponds in extra-conscious reality to a force-endowed medium, whose actual existence is indeed made evident by the sundry modes of radiant energy.

ditions. This involves the conservation of the physical substratum as well as the conservation of its energies. Or, rather, it reveals its infallible specific constitution and powers under definite conditions.

That all modes of unequilibrated activity manifest themselves to us as so many modes of motion or displacement, is due to the fact that our perceptual sign for every kind of physical change takes the form of motion or commotion of our percepts. It is, therefore, obviously erroneous to conclude that these perceptual modes of motion are the cause of the changes occurring in physical existents. And it is erroneous also to conclude that the activities of physical existents which we perceptually realise as motions are themselves only motions.

When a chemical compound is formed by combination of elements, the process is perceptually realised by us as a commotion among the combining particles. But from the newly acquired properties of the compound, revealed in roundabout ways to our different senses, we rightly infer that specific energies appertaining to the combining substances have been here at work, while we were merely perceiving definite modes of commotion.

The various considerations here brought forward, and many more not here touched upon, allow us to conclude, that changes occurring in and among physical existents, changes perceived by us as motions or commotions of the percepts aroused by their sense-stimulating activities; that these changes are wrought by specific efficiencies belonging to their own intimate nature.

#### VITALITY AND ORGANISATION.<sup>1</sup>

The general remarks of the previous section were called for in order to establish a position from which a correct co-natural interpretation of "life" may be attained. Scientists have been on the wrong track when they supposed that vital activities could be cor-

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<sup>1</sup> The views here expressed are the result of a study of primitive forms of life, carried on during a number of years.



related with the activities of lifeless nature, by simply applying to them the laws of mechanically induced motions.<sup>1</sup>

To arrive at a unitary view of nature, we have, on the contrary, to regard all activities, whether displayed by living or by lifeless existents, as the result of the action and reaction of their own specific energies.<sup>2</sup>

Yet even to casual observation there exists no greater contrast among the constituent objects of nature than that witnessed between living and lifeless things. It is above all the vital phenomenon of self-movement which strikes the sense as something differing altogether from changes undergone by lifeless objects. These seem to be moved only when externally pushed or pulled, while the motions of living bodies seem to be actuated by a power inherent in themselves.

On closer examination the contrast between these two modes of bodily existence becomes even more profoundly marked. The structure of living beings is found to be framed throughout for the attainment of definite ends connected with their own particular welfare. And it is fashioned, moreover, into organs of interaction with special objects and agencies of the outside world, through which these are likewise rendered subservient to the needs and purposes of such beings as are endowed with life. Lifeless bodies, on the other hand, are mere inorganic aggregates of particles, whose struc-

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<sup>1</sup> Having from my biological standpoint for many years argued against the purely mechanical interpretation, I rejoice to find the objections I have urged corroborated by a professional physicist of the highest standing. Professor Mach, in his remarkably lucid *Science of Mechanics*, translated in a masterly manner by Mr. Thomas J. McCormack, and beautifully published by The Open Court Publishing Company, remarks: "Purely mechanical phenomena do not exist. With dynamical results are always associated thermal, magnetic, electric, and chemical phenomena, and the former are always modified in proportion as the latter are asserted. On the other hand, thermal, magnetic, electric, and chemical conditions also can produce motions. Purely mechanical phenomena, accordingly, are abstractions."

"The view that makes mechanics the basis of the remaining branches of physics, and explains all physical phenomena by mechanical ideas, is, in our judgment, a prejudice." (Chap. V.)

<sup>2</sup> The recognition of specific energies in opposition to Lewes's and Wundt's view of "functional indifference" was urged by the present writer in *Mind*, Vol. V, 1880, under the title "The Dependence of Quality on Specific Energies."

ture is not disposed in a way to conduce to the welfare of the body as an integrant being. Nor are the relations of interaction between inorganic bodies and their surroundings such as result in transforming constituents of the latter into means for satisfying the special wants and aims of the former.

The distinction between living and lifeless bodies extends furthermore and deeper still to the relation in which their minutest constituent elements stand to one another. In living beings the ultimate elements of their structure are not only throughout interdependently connected by specific bonds of union called chemical, but they are, moreover, involved in a definite cycle of changes controlled by the nature and activity of the living individual as an indiscernible entity. Lifeless bodies, on the contrary, consist of a multitude of separate non-interdependent chemical units, forming a more or less coherent aggregate held together by bonds of union called physical. And whatever displacements their constituent particles may suffer are nowise actuated nor controlled by the nature of the body as a whole. In fact, a living being may be looked upon as one single vast and complex chemical vortex. While lifeless bodies are more or less bulky conglomerates of incomparably less complex molecules.

But the most remarkable of all contrasts obtaining between living and lifeless bodies has yet to be mentioned. A living being begins its existence as a mere rudiment of itself, as a so-called germ. This all but shapeless germ, by a most specific cycle of intrinsically controlled changes, assisted by assimilable matter and other agencies of its environment, develops gradually into a full-fashioned individual, reproducing in rejuvenated form an exact copy of the adult organism from which it was derived. It grows by developmental stages from ovular and embryonic beginnings to perfect stature. (It is true a crystal immersed in a solution of its own material may, by a figure of speech, be likewise said to grow. But it does so not by a process of intrinsic assimilation of complementary material, but simply by external accretion of the same material of which it is itself composed.) And this its so-called growth leads in no way to the



gradual development of a specifically organised form, but only to an enlargement of the same initial shape.

Another and culminating distinction between living and lifeless bodies widens still more the distance by which they are divided. Biological science leaves no doubt that life on our planet was first manifested by elementary beings whose structure showed no trace of morphological organisation. And it is from such primitive beings that the highest organisms now extant are the marvellously developed descendants. The sundry inorganic substances that enter into the constitution of our planet gained likewise their present molecular constitution gradually under changing cosmical and geological conditions. But the growing complexity of their structure was not, as in living beings, genealogically transmitted from individual compounds to individual offspring. The phenomenon of procreation has no analogous counterpart in lifeless nature.

The scientific problem of life offers thus difficulties transcending immeasurably those encountered in the interpretation of inorganic phenomena. What in verity can be the nature of this most intimate, yet least understood fact of vivification?—this intangible something whose formative potency draws, to itself stray stuff from the visible world, coercing it into significant organic arrangement and prescient aimful activity; illuminating, moreover, its tiny air and dust-built habitation with the glow of emotive affections, and a vast expanse of world-revealing visions?

Here again, as in inorganic science, we have no other than sense-awakened data upon which to ground our explanation. Vital phenomena, their morphological appearance and physiological bearings, are all only sense-revealed. And it is almost altogether upon a foundation of nothing but visual percepts, consisting of mere shapes, shades, and colors and their changes, that we have to frame our conception of the astonishingly complex nature of organic beings and their vital activities.

With such eminently indirect and fractional data for interpretation, it seems obvious that a close study of the most primitive, least intricate forms of life, holds out the best hope of arriving at a correct view of the nature of life in general.

When we have under observation living beings of all but homogeneous appearance, possessing no specified organs, no morphological differentiations, and yet performing all essential vital functions, nutritive and depurative, motor and sensory, and moreover growing and procreating; when we have all these vital marvels taking place under our very eyes in their simplest and most transparent aspect; it would seem, that, if the mystery of vitality can ever be solved, it will be by gaining an understanding of the intimate molecular processes that give rise to these fundamental vital activities.

We have before us a substance consisting out and out of well-known inorganic elements, that, unlike other combinations of these same elements, displays those wondrous phenomena which distinguish so characteristically living beings from lifeless things. To what sort of influence does it owe its singular endowments? It is the same influence through which we also are alive.

( Has, then, perchance some superefficient power, unrevealed in lifeless nature, seized upon those inorganic elements from without, forcing them to fall into highly intricate combinations and modes of activity, altogether foreign and antagonistic to their own propensities?

Or has it rather been by dint of potentialities inherent in themselves, that, through gradual, toilful composition, these elements have come to form combinations of such intricate nature as are found to display that peculiar cycle of interdependent activities in which life is seen to consist? )

In closely watching the least complex beings now extant, such, namely, as display amœboid movements, the physical aspect of vitality discloses itself as a definite, interdependent cycle of molecular occurrences. In selecting suitable specimens it is not difficult to interpret the phenomena under view. The flowing-out from the substance of the protoplasmic individual of more or less numerous, more or less elongated and attenuated processes, or pseudopodia as they are sometimes called, alternating after the lapse of more or less time with their shrinking and reincorporation; this simple occurrence of partial expansion and contraction, ever uniformly reit-

erated, constitutes the fundamental twofold, yet indivisible, action in which vitality essentially consists. All other vital functions are subservient to this central see-saw movement. And it will be shown that its developmental elaboration draws with it the differentiation of the protoplasmic substance into specifically formed and specifically acting tissues and organs.

Our task then is to frame from the data here given a scientific conception of the intimate molecular occurrences that determine this particular activity in which vitality consists. Furthermore to discover the conditions which in the course of organic elaboration give rise to the differentiation and position of the principal tissues and organs of highly developed organisms.

First of all let us ascertain what has happened when a process, vigorously pushed out from the substance of an amoeba, is gradually arrested in its onward course, beginning thereupon to shrink within itself, and ending in being reincorporated. In order to witness typical and most instructive cases of this occurrence, such amœboid beings have to be selected as push out slowly long and broad processes.

In attentively observing such cases (Fig. 1) it becomes evident that the shrinking of the process is the work of chemical disintegration. It begins at the surface of contact with the medium and extends gradually, and more or less rapidly and completely, towards the centre, or rather the axis of the protoplasmic cone or cylinder. This is clearly evidenced, first by the slackening flow of the granules embedded in the substance near the surface, and then in that portion of the hyaline substratum brought into contact with the medium becoming itself granular. In

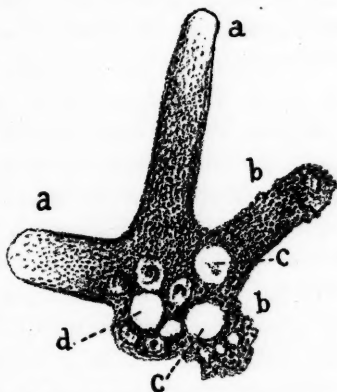


FIG. 1.—AN AMŒBA WITH LONG AND BROAD PROCESSES.

- a a. Outflowing processes.
- b b. Shrinking processes.
- c c. Depurative vesicles gathering the fluid products of functional decomposition.
- d. Depurative vesicle gathering the fluid products of nutritive decomposition.

favorable specimens it can be easily seen that a process of this kind owes its elongated shape to the stagnating surface forming a lengthening tube, through which the central, still fluent material issues farther and farther into the medium. The proof that the change here observed is in fact the work of chemical disintegration, and not of mere physical modification, is visibly given by vesicles forming within the disintegrating substance, in which are gathered the effete products of decomposition, presently seen to be eliminated.

The influences that are causing this chemical disintegration are readily detected. Any sort of contact or external stimulus tends to decompose more or less profoundly the highly complex and therefore explosive constitution of the protoplasm. During formation of a process an expanding surface is offered to the stimulating influences of the medium, and the ensuing disintegration, accompanied by shrinking or so-called contraction, is obviously the effect of these influences. By means of artificial or supernormal stimulation the shrinking may be accelerated and heightened. Stimulation on the part of the medium may, on the other hand, be called normal or functional, when it does not decompose the protoplasmic substance all too profoundly, that is, beyond easy restitution. Such normal stimulation is indeed an essential and indispensable condition of vital activity. The consequent disintegration of the stimulated substance forms the retrograde or contractile phase of the fundamental vital function. And it was on account of this salient phenomenon of shrinking on stimulation that the living substance has been predominantly regarded as a contractile substance. Furthermore, "irritability" on stimulation, or "sensibility" in case the effect of stimulation was believed to be felt, used to be looked upon as the chief characteristics of life.

The study of protoplasmic individuals teaches, however, that the immediate effect of stimulation gives rise only to the retrograde or negative phase of vital activity. In order that the unitary movement in which life consists may be completed, it has to be complemented by the restitutive, positive phase.

Now as the shrinking or contractile phase of protoplasmic activity proves to be the outcome of chemical disintegration, it is

legitimate to infer that the complementary phase of re-expansion must be the work of chemical reintegration. And this is obviously the case.

Different stages in the elaboration of the living substance manifest themselves through the diverse ways in which the fundamental vital activity is carried on, and also through the sundry forms which amoeboid individuals in consequence assume. There are specimens which push out long and slender processes, whose substance offers so little restitutive resistance to the disintegrating influences of the medium as to become quickly stagnated through and through, remaining thus often for hours together exteriorised and apparently deadened. Other specimens with just as slender and long processes manage to reconstitute their substance rapidly enough to be capable of maintaining partially and for a considerable time their fluent state in spite of exposure to the disintegrating influences. It is this more or less rapid play of alternating disintegration and reintegration which imparts to the protoplasm its pulse of life, which constitutes it a living substance.

We have seen by what means protoplasmic disintegration is brought about. How, then, is its re-integration effected?

Let us keep our eye on the exteriorised and seemingly deadened processes of the protoplasmic star (Fig. 2). All sort of stray stuff is promiscuously drifted through its rays. Among numberless particles of foreign matter coming in contact with them only a few are attracted and retained. Through adhesion of many such attracted particles the sharp outline of the processes becomes gradually serrated. Their material undergoes thus progressive restitution through chemical union with this foreign complementary stuff, remelting and shrinking within itself. Several processes in this state of liquefaction meet, coalesce, and form eventually a globule which is drawn into the body, constituting there one of the meshes of the reticulated structure that makes up the outer layer of the little creature's frame. At times a large body, fit for assimilation, gets caught between the rays, which in consequence rapidly dissolve, shrinking so as to form a globule enclosing the foreign body.

Here in this least complicated and undisguised example the

secret of nutrition, and therewith the nature of vital assimilation, so obscure in highly developed organisms, is clearly revealed. Food serves simply as complemental or restitutive material. Its assimilation consists in appropriately filling the chemical gap caused by functional disintegration. The force that underlies this vital reintegration is the avidity of the functionally deteriorated protoplasm to reconstitute its chemical integrity. A highly complex organic sub-

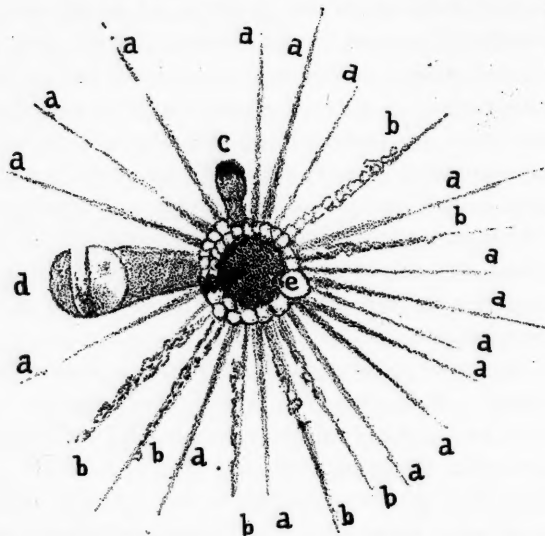


FIG. 2. STELLATE PROTOZOON OF WHICH ONLY THE RAYS IN THE FOCUSED PLANE ARE VISIBLE.

- a a. Sharply outlined rays.
- b b. Serrated rays with adherent complemental material.
- c. A shrinking ray forming a nutritive corpuscle.
- d. Foreign organism round which many rays have coalesced, forming a large nutritive corpuscle.
- e. A depurative vesicle eliminating periodically fluid products of decomposition.
- f. Undigested residue of food [dark spot at the base of d].

stance suffers partial decomposition. Thereupon, by force of its own most specific affinities, it reintegrates itself with complemental material.

Add to this, that the waste products of decomposition are eliminated, and you have the threefold, and yet unitary, activity, which in the course of development gives rise to the differentiation of the

complex organism into three main sets of tissues; the first carrying on the functional play with the medium, the second ministering to nutritive restitution, and the third to depurative elimination.

The study of gradations of low forms of life indicates unmistakably that the ectoderm of highly developed organisms represents the morphological elaboration of the relations of the living substance to the sundry stimulating influences of the medium. The entodermic organs constitute the structural fixation of the relations of the living substance to its nutritive or restitutive resources. The office of the depurative organs is, first, to eliminate the waste products of ectodermic function, and then also those of the nutritive function.

To gain an understanding of vitality and organisation, it has to be steadfastly borne in mind, that however intricately differentiated into organs, tissues, and components of tissues an organism may appear, its structure is out and out the visible substratum of this manifoldly related, and yet indiscernible, activity. It is this indivisibly correlated threefold disposition of the unitary movement of life, that governs organisation from its first beginnings to its most complex development.

It stands to reason that the development of the life of dynamical relations with the medium, or what amounts to the same thing, the development of its structural embodiment in the ectoderm: in neural tissue, muscular substance and sensory organs; that this development calls for more and more highly elaborated restitutive material. While, on the other hand, the growing incongruity of the raw material furnished by the medium for restitutive purposes necessitates a more and more complex series of preparatory processes carried on by means of the elaboration of the entodermic organs: the digesting, blood-preparing, and blood-distributing organs. The depurative organs, meanwhile, lungs, kidneys, and the rest of them, or their more primitive substitutes, keep pace with the general structural elaboration.

The entire developmental process is evidently controlled by the functional play of the organism with its medium. This fundamental process of vital disintegration and reintegration involves nutrition and depuration.



After interpreting vital activity in the simplest manner from directly given data, some more indirect conjectures may be allowed. First, as to the probable origin of life on our planet; and second, as to the general conditions that have conduced to its structural development.

Wherever a complex molecule, formed during the chemical elaboration of our planetary material, suffered slightest disintegration, that is, loss of any of its constituent elements, and was thereupon able to reintegrate itself by means of combination with complementary elements offered by the medium, there life had its beginning. For vitality consists essentially in alternate disintegration and reintegration. No doubt the original molecule that first displayed this primitive vital activity was of an incomparably less complex nature than any vital molecule now extant. But of whatever primitive kind, its alternate disintegration and reintegration raised it from the sphere of lifeless existence into that of living activity.

And now what are the conditions that have resulted in molecular and structural development? Amœboid activity is seen to consist essentially in offering ever-renewed processes to the disintegrating influences of the medium. It may be legitimately conjectured that the stimulating influences have induced, and are still inducing, a specific elaboration of the living substance. By splitting off a definite molecule, they will determine to some extent its reintegration. The pre-established direction of its intrinsic affinities, though marvellously specific, suffers some infinitesimal change through the molecular disturbance generated on each concussion. Instead of restoring with absolute precision its former integrity, the protoplasm incorporates a molecule slightly differing from the one it lost. We know that in plants organic compounds are built up by an analogous process. For elements split off by stimulation there are substituted other elements which go to make up higher compounds than those previously decomposed. Disintegration affords the stimulus whereupon, by dint of affinitive substitution, higher integration takes place. In the laboratory higher compounds are likewise built up on this plan of gradual substitution.



It is, therefore, not far-fetched to conjecture that the highly wrought constitution of protoplasm has been most gradually elaborated by a similar process. And is it not highly probable that the structures of the ectoderm have been elaborated and differentiated through interaction and in accord with the diverse stimulating influences, that actually determine the specific outcome of their functional activity?

It will be well to consider for a moment how radically distinguished living substance really is from non-living material, however highly constituted this may be. The substance that composes a protoplasmic individual forms an indiscerptible whole. It is essentially a chemical unit, for all its constituent parts are held together by most specific bonds of chemical union. Its interdependent vital activities obviously contradict the prevalent notion, that it is composed of a mere aggregate of separate molecules. Such an aggregate of autonomous elements could nowise, save by miraculous intervention, co-operate in effecting the unitary movement of life. Only a substance forming a chemical whole, a substance whose component parts are integrant, and not merely aggregated constituents, can possibly display the manifoldly related, yet indivisible, molecular activity in which life consists. Each of the numberless kinds of amoeboid beings assumes a distinct adult form. This clearly indicates that its growth is controlled by the nature of the individual as a whole. It can never be the outcome of the mere cohesive aggregation of a set of chemically non-interdependent molecules. The flow of a protoplasmic process, nay, of an entire protoplasmic individual, in consequence of cumulative reintegration, demonstrates visibly the chemical interdependence of the constituent parts. And so does likewise their shrinking on stimulation. Let the all-pervading bond of chemical union snap, and the material which even now composed the living individual will no longer be a living substance, but a mere deadened lump of organic stuff, rapidly deteriorating into less and less complex fragments of its former self.<sup>1</sup>

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<sup>1</sup> What complicates the molecular process underlying vitality, is that each particle of deteriorated protoplasm serves as restitutive material for other deteriorated particles, just the same as food. Two disintegrated processes, for instance, meet

Be it emphatically repeated : every interpretation of life, which makes the unitary activity in which it consists be performed by a number of separate chemical units of whatever kind, gemmules, physiological units, plastidules, biophores, somacules, and eventually cells ; every such mere aggregative interpretation is thereby fatally vitiated at its foundation, and logically forced to invoke miraculous help, in order to actuate and regulate the organic co-operations of so many milliards of separate beings. Strange that the eminent scientific thinkers who have occupied themselves with this question have failed to recognise so patent a state of things.<sup>1</sup>

In illustration of the central fact, that the fundamental and indivisible molecular activity of vital disintegration and reintegration determines not only the mass-motion or motility of the living indi-

and coalesce by force of such restitutive affinity. So in gradually dying protoplasmic individuals restitution by means of complemental combination of different portions of the protoplasm goes along with its eventually fatal disintegration. This happens when the conditions that cause disintegration preponderate. When, on the contrary, even after profound disintegration, the restitutive conditions gain the ascendancy the individual recovers gradually its full integrity through combination with complemental material derived from the medium. All this is readily and most strikingly observed in artificially slicing protoplasmic individuals.

<sup>1</sup> So far as "cells" are concerned, the continuity of their protoplasm, and its importance as a clue to the understanding of the unity of the organic individual, is being more and more fully recognised by leading biologists.

"Nach dem Mitgetheilten kann nicht, wie es nach den älteren Anschauungen der Fall sein sollte, der Körper als ein blosses Conglomerat von Zellen angesehen werden, die durch ihre Membranen völlig von einander abgeschlossen und in ihren Existenzbedingungen ziemlich unabhängig von einander sind, es bestehen vielmehr in den Geweben und Organen so zahlreiche Verbindungen zwischen gleichartigen und ungleichartigen Zellen, dass es vollkommen gerechtfertigt ist, den ganzen Körper als eine einheitliche Masse lebender Substanz, als ein Synplasma aufzufassen." *Real-Encyclopädie der gesammten Heilkunde*, Professor Karl Frommann, Article 'Zelle,' 1890.

"Bis vor Kurzem nahm man an, dass die Plasmakörper der Pflanzenzellen durch die Zellwände vollständig getrennt seien und in keinem Zusammenhang mit einander stehen. Man musste sich fragen, wie ein Zusammenwirken einzelner Zellen im Dienste des Gesamtorganismus unter solchen Umständen möglich sei und die Pflanze als Lebenseinheit dabei zu Stande komme. Dieses Problem fand seine Lösung in der Entdeckung, dass die einzelnen Plasmakörper der Zellen durch feine protoplasmische Fäden verbunden sind. Diese feinen Fäden durchsetzen die Wände, reichen von Zelle zu Zelle und bedingen in solcher Weise, dass die lebendige Substanz einer Pflanze thatsächlich zusammenhängt, dass somit die Pflanze, ähnlich wie das Thier, einen einheitlichen, lebendigen Organismus bildet." Prof. Eduard Strasburger, *Rede zum Antritt des Rektorates, etc.*, 1891.

vidual, but also its essential form, as well as its main functions, ectodermic, entodermic, and depurative, together with the definite position of the special portions of protoplasm that carry on these functions; in illustration of this cardinal fact let us examine the

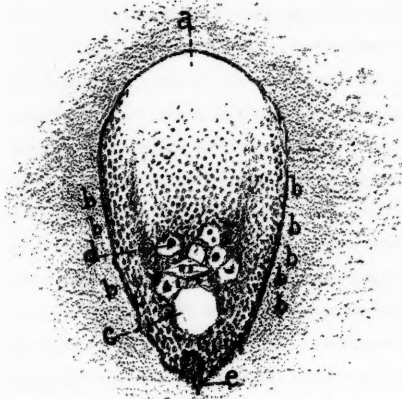


Fig. 3.—AN OVOID AMOEBA.

- a. Hyaline material issuing from granular matrix.
- b. Disintegrated protoplasm-forming envelope.
- c. Depurative vesicle.
- d. Food deposit.
- e. Undigested food-residue.

highly developed, yet out and out fluent, protoplasmic individual, Fig. 3.

A clearly outlined ovoid being is seen to flow evenly across the field of the microscope. It may be detected at a glance that it embodies all essential features of organisation, but organisation not yet structurally fixed. Though throughout fluent, it maintains a definite shape. It is bilaterally symmetrical. It has an oral and an aboral pole, an incipient ectoderm, a

digestive entodermic substance, a depurative vesicle; all occupying definite positions determined by the indivisible cycle of activities that constitute its vitality. It takes in food only in front, retains it until digested in the centre of the body, and eventually evacuates the residue at the aboral pole.

Much of the scientific mystery attaching to vitality and organisation will be dispelled on attentively watching their manifestations in this most favorable protoplasmic specimen. We have here a living being consisting of nothing but fluent substance, exhibiting a localised distribution of all essential vital functions. It constitutes a veritable vortex of vital activity, maintaining amid constant molecular change its original constitution; advancing, moreover, steadily headforemost through space. All the differently functioning regions of this vital vortex receive their specific character from

the peculiar position they occupy in the cycle of molecular activity that constitutes living substance.

From the neighborhood of the digesting protoplasm within the body there issues a continual flow of finely granulated material; and farther in front there emerges from this granular matrix a perfectly hyaline substance. This foremost product of cumulative integration presents thus an expanding surface to the medium. Suffering at last disintegration, it is thrust aside by the bursting forth of new expanding material and slides down along the outer surface, helping there to form the gradually contracting envelope; closing in, at last, in the rear completely collapsed, and ready to re-enter by means of complemental restitution the ascending current. It is by means of this cycle of definitely interdependent activities that the form of the organism is maintained. Food coming in contact with the substance in front gets wrapped up in a coat of protoplasm and is lodged with the same as a nutritive corpuscle in the centre of the body.<sup>1</sup> Between the disintegrated protoplasm gathered in at the rear and the stationary deposits of nutritive corpuscles, generally one single depurative vesicle ministers both to functional and to nutritive depuration.

This beautiful and highly instructive organism has to be looked upon as forming one single process, through the apex of which a renewed flow of hyaline material is ever maintained. In this manner only is its steady locomotion effected. This is visibly demonstrated, and all other attempted explanations of amœboid motility are therefore erroneous.

It is evident that the apex, and after it the circumference are the chemically most complex parts of the protoplasmic individuals. And it is no mere coincidence that in highly developed organisms their surface is found to consist of the most essential organic structures. These have been formed so as adequately to respond to the

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<sup>1</sup>In the course of protoplasmic elaboration one portion directly combining with food and lodged inside the body comes to prepare restitutive material for another portion which is thereby enabled to assume exclusively the dynamical relations with the medium. In this manner a digesting part of the common protoplasm becomes subservient to a moving and functionally stimulated part; the entoderm subservient to the needs of the ectoderm.

sundry stimulating influences of the medium. The headmost part of the living substance may well be said to represent the consummation of all the vital labor performed within the living individual. It is, therefore, intrinsically best fit to enter into higher relations with the stimulating influences. It is in fact an incipient head.

As regards the power of vital reproduction, the marvel of marvels of organic nature, its most primitive modes of occurrence will allow us to penetrate its secret to some extent. The fact that a protoplasmic individual has to be looked upon as a chemical unit, which on disintegration tends to restore its full integrity by means of combination with complemental material, gives us the clue to the secret of reproduction.

Growth has then to be conceived, not as a mere multiplication of separate organic molecules, but as the gradual reintegration of a fragment derived from an adult organism. This, in fact, is unmistakably demonstrated in the reconstruction of specifically formed adult shapes from artificial sections of the same. Also, normally, in fissiparous division, where the upper half of a dividing individual has to reconstruct its lower half, whilst, *vice versa*, the lower half is reconstructing its upper half. How, short of miraculous intervention, could any sort of mere multiplication and aggregation of separate molecules ever accomplish such a feat? A reproductive germ is essentially a chemical fragment of the adult organism, which by force of its most specific indwelling affinities has power to reconstitute itself to full integrity.

The interpretation of the fundamental facts of vitality and organisation here given may be found serviceable as a means of unravelling the scientific difficulties of complex organisation.<sup>1</sup> Investigators, who in future will thread their way through its labyrinthine intricacies by help of this clue, may be less likely to lose their bearings.

EDMUND MONTGOMERY.

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<sup>1</sup>This has been attempted by the present writer in the case of Infusoria, "Ueber das Protoplasma einiger Elementar-Organismen" (*Jenaische Zeitschrift für Naturwissenschaft*, Bd. XVIII, N. F. XI); and also in explanation of muscular activity, "Zur Lehre von der Muskelcontraktion" (*Pflüger's Archiv f. d. gesammte Physiologie*, Bd. XXV, 1881).

## THE ADVANCEMENT OF ETHICS.

**B**Y the "advancement of ethics" we mean two things :

I. Substitution of universalism for individualism, as the ground-principle of ethical theory. That is, scientific development of the truth, now everywhere admitted as a truism, that society is an organism—that the life of the individual and the life of society are one organic life, and possess no ethical significance except as lived each in and through the other.

II. Substitution of objective justice for all merely subjective considerations, as the ground-principle of ethical practice. That is, on the one hand, recognition by the individual of the social ideal as the "higher law" of all individual conduct, and, on the other hand, recognition by society of the personal ideal as the "higher law" of all associated conduct ; in other words, free self-government of the individual by the social ideal, and free self-government of society by the personal ideal, as the only possible means of realizing the peculiar and complex ethical constitution of the community as an organism of persons, of which the paramount law is equal objective justice.

### I.

No ethical theory could possibly exclude from recognition the great fact of society, since, in the last analysis, all ethical relations are social relations. Philosophy may possibly be (though it has never yet consistently been) idealistic ; but, by the confession of idealists themselves, ethics must be realistic, and it can never take on a thoroughly scientific character until it knows its own philosophical ground to be realism pure and simple. The reason is self-

evident. Ethical relations are possible only among ethically constituted beings, that is, persons, each of whom must exist, and be known to exist, "in and for himself;" but this principle of equal independence and reciprocal objectivity among co-existent persons is, just so far, "realism" in the philosophical meaning of the word. Hence no ethical theory has ever been presented which did not recognize the real existence of human society as its own necessary presupposition, and find in that real existence the possibility of its own existence as a theory.

The difference between universalism and individualism in ethics, therefore, is not that between affirming and denying the fact of human society, which is the universal and necessary foundation of all ethical systems. The difference lies in differently conceiving the ultimate purpose or ideal end of human life in general. All ethical systems are individualistic which identify the ultimate end of individual life with the *ethical welfare of the individual as such*—all are universalistic which identify it with the *ethical welfare of society as a whole in which the individual is a part*. The difference is a difference of moral ideals. To make this plain, and to show that the advancement of ethics, both theoretical and practical, requires adoption of the larger ideal, is the aim of the present article.

## II.

That the prevailing tendency of ethical systems, whether as considered in themselves or as illustrated in the actual life of the world, has been hitherto individualistic, not universalistic, appears alike from the history of ethical speculation, from the conduct of mankind at large, and from the traditional exclusion of politics from ethics both in theory and in practice. Nay, it appears with great distinctness in the essential conception of the science of ethics itself, as defined by one of the highest modern authorities in this department: "Physics is concerned with what is, has been, or will be; ethics with what is 'good,' or what 'ought to be,' and its opposite. We must add, however, that the good that ethics investigates is 'good for man,' to distinguish it from universal or absolute good, which is the subject-matter of theology or ontology; and again, if



we are to separate ethics from politics, we must introduce a further qualification, and define the former as the study of the Good or Wellbeing of men considered as individuals. . . So again the connection between ethics and politics is naturally very intimate. . . Still it is manifest that the good of an individual man can be separated as an object of study from the good of his community; so that the ethical point of view has to be distinguished from the political, however large a field the two studies may have in common. . . To sum up, the subject of ethics, most comprehensively understood, includes (1) an investigation of the constituents and conditions of the Good or Wellbeing of men considered individually, which chiefly takes the form of an examination into the general nature and particular species of (*a*) Virtue or (*b*) Pleasure, and the chief means of realizing these ends; (2) an investigation of the principles and most important details of Duty or the Moral Law (so far as this is distinguished from Virtue); (3) some inquiry into the nature and origin of the Faculty by which duty is recognized; (4) some examination of the question of human Free Will."<sup>1</sup> Here the exclusion of politics and sociology from the proper field of ethics, and the limitation of strictly ethical consideration to the individual as such, are sufficiently manifest.

A glance at the history of ethics confirms Professor Sidgwick's statement, so far as it relates to the past. The pagan ideal in general was strictly an ideal of the individual as such, *totus, teres, atque rotundus*. In the Orient, ethics culminated in the attributes of the "superior man" of Confucius and Mencius, and in the Buddha or "awakened man" so tersely described and vividly pictured in the last two verses of the Dhammapada:

"The manly, the noble, the hero, the great sage, the guileless, the master, the awakened, him I call indeed a Brâhmava. He who knows his former abodes, who sees heaven and hell, has reached the end of births, is perfect in knowledge and a sage, he whose perfections are all perfect, him I call indeed a Brâhmava."

The main object of ethical speculation in Greece and Rome was to determine the essential qualities of the "sage" or "philosopher"

<sup>1</sup> Prof. H. Sidgwick, art. "Ethics," *Encyclopædia Britannica*, 9th ed.



—the ideal man in whom was to be realized actually (*ἐνεργείᾳ*) the universal humanity inhering potentially (*δυναμει*) in each human individual. In this Græco-Roman ideal of the "universal individual" as the "sage," the student of history will at once recognize a perfectly consistent application to ethics of the central conception of Greek philosophy, which, germinating in Socrates and Plato, found its ripened expression in the theory of universals or leading metaphysical principle of Aristotle: namely, that the pure universal, or Form, inheres in the individual, or union of Form with Matter, as at once efficient cause, final cause, and formal cause or constitutive essence (*τό τι ἦν εἶναι, οὐσία*). The essential marks of the "sage" were variously conceived by conflicting schools; but, however conceived or named, whether by Platonists, Aristotelians, Cynics and Stoics, Cyrenaics and Epicureans, Neo-Pythagoreans, Neo-Platonists, or what not, the various constituent rays of human perfection came to a focus solely in the typical individual as such, in the "sage" or Perfect Man, and, being essentially individual attributes or qualities, were inapplicable to society except as a mere arithmetical sum of individuals as such. Similarly, the ethical ideal of Christianity from the beginning has been still an ideal of the individual as such—the "saint," the ideal Perfect Man prefigured by the traditionally real Perfect Man of Palestine; while the constitution of its politico-social ideal of the "kingdom of heaven" is too intimately blended with supernatural elements to admit, perhaps, of a rigorously philosophical treatment.

Omitting particular mention (for which there is here no room) of the numerous ethical systems of the modern period, it must suffice for present purposes to point out that the two great schools of modern ethics, the intuitional or disinterested and the associational or utilitarian, agree in limiting the proper sphere of ethics to the conduct of the individual as such, who is to be conceived ideally either as the "good man" or as the "happy man"; and that they divide merely on the question whether the ultimate ground of the individual's moral activity should be (1) disinterested individual intuitions of absolute right or (2) interested individual calculations of utility or expediency. In the one case, the only recognized ethical pur-

pose of life is to be individually "good,"—in the other case, to be individually "happy"; but, in both cases, in the former no less than in the latter, the only ethical end is inevitably reflected back at last upon the Self, and cannot be ultimately realized except in the individual as such.

It is clear, however, that, judged strictly by its own principles, the disinterested school fails to be consistently disinterested and the utilitarian school fails to be consistently utilitarian. On the one hand, when the individual makes his own goodness the supreme aim of his life, he is evidently not disinterested, however exalted may be the form which his self-interest or self-love may assume. Even "virtue for virtue's sake," if *my* virtue alone is my aim, becomes necessarily, in fact, merely "virtue for *my* sake." Clearly, I cannot reach disinterestedness on any such line as that, or on any self-returning line. The intuitionist's criticism of the utilitarian tellingly recoils upon himself; "Self is the centre of his system; regard for self shapes and colors it from first to last. The 'Ethics' are Aristotle's answer to the question, 'How is man to be happy?' It is a lofty selfishness. There is nothing sordid, nothing gross about it. It marks as by a high-water line how high ideal selfishness can be raised. But it is genuine, unalloyed selfishness, and this lies at the very core of the philosophy."<sup>1</sup> On the other hand, in order to avoid a naked and brutal egoism, the more recent utilitarianism sets up quite arbitrarily the "greatest happiness of the greatest number," or some other combination of the "general happiness" with "individual happiness," as a genuinely utilitarian ideal, in the vain hope of effecting a "compromise" between egoism and altruism. For instance, Mr. Spencer lays down this as his universal principle in ethics:

"No school can avoid taking for the ultimate moral aim a desirable state of feeling called by whatever name—gratification, enjoyment, happiness. Pleasure somewhere, at some time, to some being or beings, is an inexpugnable element of the conception. It is as much a necessary form of moral intuition as space is a necessary form of intellectual intuition."<sup>2</sup>

<sup>1</sup> Rev. I. Gregory Smith, *Chief Ancient Philosophies—Aristotelianism*, London, 1889, p. 46.

<sup>2</sup> *Data of Ethics*, p. 46.

Utilitarianism, then, requires me *invariably to will happiness*. But Mr. Spencer thus states his "compromise":

"Clearly, our conclusion must be that general happiness is to be achieved mainly through the adequate pursuit of their own happiness by individuals; while, reciprocally, the happinesses of individuals are to be achieved in part by their pursuit of the general happiness."<sup>1</sup>

This "compromise" works well enough, so long as, in willing the general happiness, I will, also, my own happiness. But, in every test instance of real (not merely apparent) self-sacrifice, I am compelled to will either (1) my own happiness at the expense of others, or (2) my own unhappiness for the benefit of others. In the first case, I do not will the general unhappiness: if this follows, it is brought about against my will by the natural law of cause and effect; I may deplore it, and suffer, through sympathy, some diminution of the happiness I will. But, in the second case, I positively will my own unhappiness, which has no cause whatever save my own volition. Consequently, since utilitarianism requires me *invariably to will happiness*, it requires me in every test instance *never to will my own unhappiness*, no matter what becomes of others beyond the sphere of my own will; it can never require me to will *contrary* to what it declares so emphatically to be the "ultimate moral aim." This is total collapse of the "compromise"—reduction of utilitarianism to that naked and brutal egoism which it seeks in vain to avoid, and which is the inexorable condition of its own self-consistency. When utilitarianism teaches that happiness as such is the "ultimate moral aim" and that goodness is merely one among many means to this supreme end, it follows that by no possibility can I find a reason in utility why I should even postpone, much less sacrifice, the most beggarly fraction of my own pleasure to the massed bliss of all mankind. If I am of a sympathetic temperament, I may indeed find a utilitarian reason for apparent (not real) self-sacrifice; but, if, like multitudes, I am naturally unsympathetic, the principle of utility requires me to will the only happiness I can understand, and buy a moment's delight at the possible cost of misery to mil-

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<sup>1</sup> *Data of Ethics*, p. 238.

lions. To a consistent utilitarianism, the "greatest happiness of the greatest number" is an impossible ideal, unless the "greatest number" is "Number One."

Two modern systems, however, from their exceptional importance, demand a brief special mention.

Kant, perhaps more weightily and impressively than any other philosopher since Aristotle, lays the supreme emphasis in ethics on the individual as such. "Nothing in all the world, indeed nothing outside of it," he declares, "can possibly be held to be unqualifiedly good, with the single exception of a *Good Will*."<sup>1</sup> Duty he defines as the necessity of performing every action out of pure veneration for the moral law;<sup>2</sup> and the law of duty itself he formulates in the world-famous "categorical imperative," which (be it noticed) is addressed to the individual, and to the individual alone: "So act, as if the maxim of thy action were to become by thy will a universal law of Nature."<sup>3</sup> This principle that "the will of every rational being" is "a universally legislating will"<sup>4</sup> is still further explained as follows:

"The will, therefore, is not simply subjected to the moral law, but so subjected that it must also be considered *as self-legislating*, and as subjected to the law for that very reason above all, since it must be itself regarded as the original author of that law."<sup>5</sup>

It may strike the reader, perhaps, that, just as no Congress, Parliament, or other legislative body, can irrevocably bind either itself or its successor, so no autonomous will at one moment can bind itself irrevocably at another moment—that the power to enact is, likewise, the power to repeal; and it may seem strange to him that Kant should overlook so formidable an objection. But, according to Kant's profound thought, the individual will which legislates or enacts so absolutely its own moral law is not precisely the same individual will which is bound by that law: the *legislative will* is that

<sup>1</sup> *Grundlegung zur Metaphysik der Sitten*, Werke, IV. 241, ed. Hartenstein.

<sup>2</sup> *Ibid.*, p. 248.

<sup>3</sup> *Ibid.*, p. 269, cf. Werke, V. 32, VII. 22, 192, and *passim*.

<sup>4</sup> Werke, IV. 279.

<sup>5</sup> Werke, IV. 279.

of the universal I, the universal rational will or abstract humanity (*homo noumenon, die reine Vernunft*) which is immanent in the individual as such, while the *subject will* is that of the empirical I, the concrete individual himself (*homo phaenomenon, der mit Vernunft begabte Sinnenmensch*); and Kant himself calls attention to this "two-fold personality" or "doubled self" of the I, when it is compelled to appear in the court of conscience as at the same time both Accuser and Accused.<sup>1</sup> Whether this subtle distinction is successful or not, Kant's ethical principle is perfectly plain: namely, that the individual as such, in virtue of the universal humanity immanent in him, is the sole and absolute source of the universal moral law, by which he freely binds himself and by which he himself is yet necessarily bound—in other words, that there is no moral law at all, either above him or in any sense outside of him, by which he either is bound or can possibly be bound in the least degree. This central conception of a *universally self-legislating individual as such* is not only laid down by Kant as the cardinal principle of his entire ethics, but also made to explain the failure of every antecedent ethical system:

"When, therefore, we look back upon all previous efforts ever made to discover the principle of morality, there is no cause for wondering why they have all without exception failed. It was seen that, through his duty, the individual is bound by the moral law; but it occurred to no one that the individual is subjected to a legislation which is *solely his own* and yet *universal*, and that he is only bound to act according to a will which is at once his own, and yet, by Nature's plan, universally legislative. . . I will therefore call this fundamental proposition the principle of *Autonomy*, in contradistinction to every other, which I will for this reason describe as *Heteronomy*."<sup>2</sup>

It is easy to perceive that Kant's cardinal principle of "Autonomy,"—that is, the immanence in each individual man of the supreme legislative will of universal humanity, as the exclusive seat and source of all moral obligation,—is only a new application of a very old principle, only an application to ethics of the Aristotelian theory of universals in metaphysics. To Aristotle, as we saw above, the pure universal, as Form, inheres in the concrete individual, as

<sup>1</sup> Werke, VII. 245, footnote.

<sup>2</sup> Werke, IV. 281.

union of Form with Matter; and this principle of the inherence or immanence of the Universal in the Individual, as its self-evolving essence and self-realizing end, is Aristotle's original and characteristic theory of universals—perhaps the most potent and fruitful theory ever propounded in philosophy, for it has dominated the entire development and written itself out legibly in the entire history of subsequent speculation. Similarly, to Kant, as we have also seen, the pure universal, as Rational Will, inheres in the concrete individual, as union of Rational Will with Sensibility (in Kant's own precise and pregnant phrase, *der mit Vernunft begabte Sinnenmensch*); and this is Kant's probably unconscious application to ethics of the Aristotelian metaphysics. The undeniable fact, therefore, that his whole ethical theory revolves about the individual as such, is now seen to have a rational explanation, and at least an historical justification, in the other undeniable fact that all modern philosophy has sprung from the Aristotelian root.

Hegel, the great thinker in whom German idealism came to its culminating point, was essentially the historical continuator of Kant through Fichte and Schelling, and renders this general relationship very apparent in his ethical theory. He, too, makes the individual as such the heliocentric fact of ethics, and, no less than Kant, proclaims in the most unqualified way the "Autonomy" of the individual will as Conscience:

"One may speak of abstract Duty in very exalted general terms, and this mode of speaking elevates the individual and expands his heart; but, when it arrives at nothing definite, it becomes at last tedious. The mind demands some particular application, to which it is entitled. On the other hand, Conscience is that deepest inward solitude with oneself, that absolute retirement into oneself, in which everything external, everything definite, vanishes. The individual, as Conscience, is no longer shackled by particular aims, and this, consequently, is a lofty standpoint, a standpoint of the modern world, which has first reached this consciousness, this submersion in oneself [that is, this self-extinction of the sensuous in the rational individuality]. The preceding more sensuous ages have before them something external or given, whether Religion or Right; but Conscience knows itself as Thought, and knows that my own thought is that which alone imposes on me a moral obligation [*dieses mein Denken das allein für mich Verpflichtende ist*]. . . 'Conscience' expresses the absolute title of the subjective self consciousness, namely, to know *in itself and from itself* what is Right and Duty, and to recognize nothing else than

what it thus knows as the Good, maintaining at the same time that what it thus knows and wills is Right and Duty *in truth*. Considered as this union of subjective knowledge and objective existence in and for itself, Conscience is a sanctity which it would be sacrilege to assail."<sup>1</sup>

In these unequivocal and emphatic terms, Hegel declares the absolute ethical independence of the individual as such. He, like Kant, makes the individual a universally self-legislating will, concentrates all moral obligation in its self-imposed law, and thus denies even to the "objective spirit," the universal reason of the world as objectified in the State, any ethical authority over the subjective conscience of the individual as such. The individual conscience may be, and often is, deluded; it is by no means infallible; but it is, nevertheless, Hegel's absolute and ultimate appeal in ethics. To be sure, he immediately proceeds to add:

"Whether, however, the conscience of a particular individual is in accordance with this idea of Conscience,—whether that which it holds or declares to be good is also really good,—this is known solely from the *content* of what is thus held or declared to be good. What is Right and Duty, considered as that will-determination which is rational in and for itself, is not essentially the particular property of an individual and does not exist essentially in the form of feeling or any individual (that is, sensuous) knowledge; it exists essentially in the form of *universal* determinations of thought, that is, in the form of *laws* and *rules*. The individual conscience, therefore, is subjected to this judgment, namely, whether it is *true* or not; and its appeal merely *to its Self* is immediately opposed to that which it intends to be—the rule of a mode of conduct which shall be rational, universal, and valid in and for itself. For this reason the State cannot recognize the conscience in its peculiar form as *subjective knowledge*, any more than science can concede validity to mere subjective opinion, assertion of or appeal to mere subjective opinion."<sup>2</sup>

Hegel goes on, later, to define the ethical conception of the State as follows:

"The State is the rational in and for itself, considered as the reality of the substantial *Will*; and this reality it has in the particular *Self-consciousness*, exalted to its own universality [i. e. Kant's universally self-legislating will]. This substantial unity is the absolute and unmoved aim of the Self, in which freedom comes to its highest right; just as this same substantial unity, the final aim of Society, has

<sup>1</sup>*Philosophie des Rechts*, Werke, VIII. 177-181.

<sup>2</sup>*Ibid.*, p. 181.



the highest right against individuals, whose *highest duty* it is to be fellow-members of the State."<sup>1</sup>

Further :

"The State has the right and the form of self-conscious and objective rationality, the right to enforce it and to maintain it against contentions which arise out of the *subjective* form of truth, with whatever confidence and authority this may envelop itself."<sup>2</sup>

All this sets up the State as another absolute and ultimate authority in ethics, as an objective, universal, and rational will which has the right to enforce itself against the subjective will of any individual. But, clearly, what we have here, as Hegel's highest teaching in ethics, is the mere possibility of a deadlock of wills, an irreconcilable conflict of wills between the individual and the State. This conflict, this deadlock, is left absolutely without remedy, because there is no higher will—because to Hegel the State, as "objective spirit," is itself the highest will of all : in his own words:

"The State is the reality of the ethical Idea,—the ethical Spirit, as the *manifest*, self-clear, substantial Will, which thinks and knows itself, and executes what it knows and in so far as it knows it."<sup>3</sup>

True, it is the individual's "highest duty," as we have seen, "to be a fellow-member of the State," provided, however, that he himself recognizes it as such. But if otherwise, if he fails to recognize it (and there are to-day too many sincere and honest anarchists to permit such a supposition to be impatiently poohpoohed), then Hegel gives *no moral reason whatever* why the individual should submit his thought to the thought of the State or his will to the will of the State ; for he declares unqualifiedly that "my own thought is that which alone imposes on me a moral obligation." In that declaration lies the quintessence of anarchy, as the fundamental principle of the Hegelian ethics,—the apotheosis of the individual as such, and the absolute overthrow of the State. Even in deciding whether the individual conscience "is true or not," the individual himself is Hegel's final appeal : the individual must answer that question *for himself*, and all that the State can do is to crush him.

<sup>1</sup> Ibid., p. 313.

<sup>2</sup> Ibid., p. 343.

<sup>3</sup> Ibid., p. 342.

For it has no higher authority to invoke than absolute brute force; the legislation of the "objective spirit" cannot supersede the absolute self-legislation of the individual conscience, as the ground of individual conduct; the universal human reason which realizes itself in the domestic, civil, and political constitution of the State has no moral authority over me, if "my own thought is that which alone imposes on me a moral obligation." Hence Hegel well epitomizes his ethics of individualism in these significant words: "At the apex of all actions, even including world-historical actions, stand *Individuals*, as subjectivities which realize the substantial [i. e. the universal and substantial will of the objective spirit]."<sup>1</sup>

It is no accident, therefore, that the inadequacy of the Hegelian conception of the organic State—"the State," he says, "is an organism, that is, the development of the Idea in its differences"<sup>2</sup>—betrays itself in Hegel's strange and strained identification of the social ideal with the actually subsisting state of society, or rather in his somewhat contemptuous dismissal of the ethical ideal altogether. The general maxim of his philosophy, that "whatever is rational is real and whatever is real is rational," when applied to his ethics, might well read, "whatever is good is real and whatever is real is good." This is certainly the spirit and drift of such utterances as these:

"The separation of Reality from the Idea is particularly fascinating to the mere understanding, which mistakes the dreams of its own abstractions for something true, and is vain of its *Ought*, which it is specially fond of prescribing in the field of politics, as if the world had waited for the mere understanding to learn how it ought to be, but is not; if the world were as it ought to be, where would the understanding's precocity find room for exercise? . . . Philosophy has to do with the Idea, which is not so powerless as merely to know an Ought and not also to be what it ought."<sup>3</sup>

And again:

"Like empiricism, philosophy, too, knows only what is: it knows no such thing as what merely *ought* to exist, and therefore *does not* exist."<sup>4</sup>

<sup>1</sup> Ibid., p. 434.

<sup>2</sup> Ibid., p. 331.

<sup>3</sup> *Encyklopädie*, Werke, VI. 11.

<sup>4</sup> Ibid., p. 80.

Since ethics, as Professor Sidgwick has well defined it above, deals solely with "what is 'good' or what 'ought to be,' and its opposite," one may well ask how such a philosophy as Hegel's comes to have any ethics at all. Such ethics as it has, however, revolves in the last analysis about the individual as such: for the ostensible subordination of the individual to the "objective spirit" means nothing, when the ultimate appeal against the aberrant "subjective conscience" of the individual lies necessarily, as we have seen, to the individual himself.

It is just as easy to perceive in the case of Hegel as in the case of Kant, that the root of all this ethical individualism is the old Aristotelian theory of universals in metaphysics. Hegel's fundamental principle is that the universal is real in the individual alone, and that the individual is real in so far only as it realizes and contains the universal: the universal is in the individual, *because it inheres in it as its immanent self-determining essence*, and the individual is in the universal, *so far, and so far only, as it is subsumed under it as the one universal nature or essence of all individuals*. Insight into this principle is the key to all comprehension of Hegel. He expresses it plainly enough over and over again. In the logic, for instance, he says of the Notion:

"Its *universal* nature gives external reality to itself through *particularity*, and thereby, and as negative reflection into itself, makes itself an *individual*. Or, conversely, the Real is an *individual*, which raises itself through *particularity* into *universality*, and makes itself identical with itself."<sup>1</sup>

Similarly, in the ethics, explaining his definition of the State as "that which is rational in and for itself," he says:

"Considered abstractly, rationality consists in general in the all-interpenetrating unity of universality and individuality; and here, considered concretely according to its content, it consists in the unity of (1) objective freedom, that is, the universal substantial will, and (2) subjective freedom, as the individual knowledge and its will, seeking particular aims. For this reason, according to its form, rationality consists in an activity determining itself according to laws and rules which are *thought*, i. e. *universal*. This Idea is that Being of the Spirit which is eternal and necessary in and for itself."<sup>2</sup>

<sup>1</sup>*Encyklopädie, Werke, VI. 345.* (The italics are Hegel's own.)

<sup>2</sup>*Philosophie des Rechts, Werke, VIII. 313.*

The substantial identity of this doctrine with Aristotle's is too clear for controversy. To Aristotle, the pure universal Form inheres in the concrete union of Form with Matter. To Hegel, the pure universal Thought, Conscience, or Person,<sup>1</sup> inheres in the individual man, as concrete union of Thought with Sense ("this individual I,"<sup>2</sup> the same as Kant's more explicit "sense-man endowed with reason;" for Hegel had not the hardihood to deny the fact of sensation, much as it conflicted with his principle that thought is "the universal substance of the spiritual"<sup>3</sup>). The fact, therefore, that Hegel's ethical system, like Kant's, revolves about the individual as such, and that he, like Kant, discovers no universal moral obligation other than that which lies concentrated in the essential common nature realized immanently in each and every individual, is historically explicable by the fact that both build alike on one and the same foundation in the Aristotelian theory of universals. The proof of this is that both arrive essentially at one and the same ethical principle, summing up the supreme rule of Duty in a canon which tersely prescribes *individual perfection*, in the form of a sole and sufficient *personal ideal*: Kant in his "practical imperative," "Act so as to treat humanity, whether in thy own person or in the person of every other, as always an End, never as a Means alone!"<sup>4</sup> and Hegel in his "mandate of ethical law," "Be a person, and respect others as persons!"<sup>5</sup> These noble precepts, be it understood, declare a personal ideal for the individual as such, but no social ideal whatever; they are addressed to the individual alone; and in them culminates the ethics of individualism.

## III.

How confused and confusing is the present state of ethical theory, may be best illustrated, perhaps, from the preface to Professor Bowne's *Principles of Ethics*. In this preface the author says:

<sup>1</sup> "Person" does not mean to Hegel the whole man, but only "the abstract will, existing for itself." (*Philosophie des Rechts*, Werke, VIII. 74.)

<sup>2</sup> *Phänomenologie des Geistes*, Werke, II. 78.

<sup>3</sup> *Encyclopädie*, Werke, VI. 46.

<sup>4</sup> *Grundlegung zur Metaphysik der Sitten*, Werke, IV. 277.

<sup>5</sup> *Philosophie des Rechts*, Werke, VIII. 75.

"Moral philosophy has been with us from the beginning; but moral theory still fails to get on. According to Rousseau, Socrates defined justice, but men had been just before. It is a happy circumstance, and one very full of comfort, that, in the great bulk of duties that make up life, men of good will can find their way without a moral theory."

The whole ethical question is here most innocently begged. Who is "the man of good will"? Clearly, the man who wills the good, that is, so directs his will as to realize the good. But the directing aim of his will is his ideal, his formed thought of the good, and this formed thought of the good is precisely his "moral theory." Hence "men of good will" *cannot* "find their way without a moral theory." In fact, no man can will at all without a moral theory; no man can will without willing some particular end, and no man is a moral being who is not compelled, by a power from which there is no escape, to judge his own ends as good or bad; and the principle by which he judges them, whether lofty or degraded, is *his* moral theory.

The great trouble with the world, the chief reason why there is so much easily preventable evil in society, is the fact that so many men's moral theories are so miserably bad. Knowledge of good and evil is indeed not virtue; yet there can be no virtue without knowledge of good and evil. Just so far as ignorance works wrong in the world, just so far is the world suffering from lack of a true and universally adopted moral theory.

If, then, "moral theory still fails to get on," and the fact is patent enough, may it not be due to the other fact that moral theory still cleaves so pertinaciously to its half-principle of individualism? For individualism is false in its halfness alone; it is the truth in it which has kept it so long alive. But the ancient Aristotelian theory of universals, out of which individualism in modern ethics and in modern philosophy originally sprang, has already yielded to a larger truth in modern science; and for this reason modern science is a schoolmaster whom modern philosophy and modern ethics do themselves incalculable wrong to ignore. This is not the place for dwelling on the point; that must wait. But it is necessary to state succinctly, though only in part, what is that enlarged theory of univer-

sals which modern science has already substituted for the Aristotelian theory—which, however, it has not yet formulated in distinct terms or even distinctly conceived as a new, universal, and revolutionizing principle.

It is the capital error of Aristotle, Kant, Hegel, and modern idealism in general, that *the universal inheres in the individual*; but it is an error which modern science has already outgrown. Most certainly, there is a common essential nature to be found in all things of a kind, but this common essential nature is not the kind; most certainly, there is a real community of constitution in all specimens of a species, but this real community of constitution is not the species. True, this common essential nature, this real community of constitution, can be separately conceived, dropping out of view all other elements of the real individual being in which alone it has a real existence; but it is then a pure abstraction, and this abstract concept is not the real universal to the real individual. The real universal to the real individual is the totality of all the individuals, not merely as an aggregate, but also as an individual of a higher order.<sup>1</sup>

For instance, there is a certain common lion-nature which is found in every lion, abstracted in the concept, and uttered in the definition; but all lions together constitute the species lion, and the species lion is an individual of a higher order to the genus cat. Hence to the individual lion the real universal is, not the common lion-nature, which does indeed inhere in every lion and is abstracted in the concept, but (1) all lions as an *aggregate universal* of individuals, and (2) all lions as a *single universal* (the one species lion) in the higher universal (the one genus cat). With good reason, therefore, the scientific class-name of "the lion" includes both the species and the genus, as "cat-lion" (*Felis leo*). Thus the theory of philosophical idealism, which identifies the universal with the common essential nature, holds with perfect consistency that the universal inheres in the individual; while the theory of Scientific

<sup>1</sup> Mr. Spencer half expresses this new scientific conception of the universal, when he says: "It is true that the species has no existence save as an aggregate of individuals" (*Justice*, p. 6).

Realism, which identifies the universal with the totality of its individuals as one species, holds with equal self-consistency that the individual inheres in the universal. The ethical outcome of the first theory, as has been shown above, is ethical individualism; the ethical outcome of the second theory, as remains to be shown, is ethical universalism.

But the needed advancement of ethics from individualism to universalism will be deprived of one of the strongest arguments in its favor, unless it is briefly indicated how this same advancement has already been achieved in modern science.

Holding that the universal is the sole object of science, and conceiving it to be simply the essential nature common to all its individuals and immanent in each of them, Aristotle was obliged to reject from scientific consideration all that does not belong to that common nature. This he explicitly declares: "Mere particulars are innumerable, and cannot be known [τὸ δὲ καθ' ἕκαστον ἄπειρον καὶ οὐκ ἐπιστητόν]." But, in consequence of thus rejecting all mere particulars as unknowable, there was left to be known merely the uniformities of things, merely their common essential natures abstracted from all their individual peculiarities; and thus the individual differences which distinguish one thing from another of the same kind lost all scientific value. The result of this view was that the common essential nature stood out alone, absolutely identical in all individuals and absolutely unchangeable in the succession of generations. In other words, the Aristotelian theory of universals was the rational and historical root of the doctrine of the *immutability of species*.

It was the transcendent service and imperishable glory of Darwin to succeed in establishing the scientific value, discredited and lost by Aristotle, of the *individual difference*. Conceiving the individual difference as the "spontaneous variation" (which he did not pretend to account for), and perceiving that it is scientifically no less important than the common essential nature, Darwin founded on it his revolutionizing theory of natural selection. For (notwithstanding Weismann and his school) it is the advantageous individual "variation" or "adaptation" which, being transmitted by hered-



ity, multiplied and spread by a long series of generations, and finally incorporated thereby in the common essential nature itself, at last transforms the species and alone accounts for the derivation of one species from another. This vast revolution in biology, establishing the *mutability of species*, has a still profounder meaning in philosophy. The change from Aristotle to Darwin was a change from the Aristotelian conception of the *abstract universal*, as the common essential nature *minus* all the differences of individuals, to the scientific conception of the *concrete universal*, as the common essential nature *plus* all the differences of individuals,—that is, as the real totality of all the real individuals in the species or real universal. Hence the Darwinian revolution in biology, by its necessary implications, is the greatest forward step in philosophy since Aristotle. It finds its philosophical expression in a complete reversal of the leading principle of the Aristotelian, Kantian, and Hegelian philosophies, and declares that the universal does not inhere in the individual, but that, on the contrary, the individual inheres in the universal. And it finds its ethical expression in the substitution of universalism for individualism, as the ground-principle of ethical theory.

What, then, is the meaning of universalism in ethics? To answer this question, nothing is needed but full comprehension of the principle, acknowledged to-day with scarcely a dissenting voice, that "society is an organism." For the organism is the ethical universal itself.

Kant never laid succeeding thinkers under a heavier debt of gratitude than when he analyzed the organism as such.<sup>1</sup> The defects of his analysis are those of the Aristotelian theory of universals, which he inherited; its great and shining merits are due to that incomparable analytical genius which was his own. Premising that "a thing exists as an End in Nature, whenever it is cause and effect of itself," Kant first unfolds this conception of a self-evolving *causa sui* in the concrete example of a tree. He shows that a tree is both cause and effect of itself in reproduction, in growth, and in reparation: (1) one tree is the cause of another tree in natural re-

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<sup>1</sup>*Kritik der Urtheilskraft*, Werke, V. 382-390.

production, and simply duplicates its own generic self, when it preserves itself permanently as a genus or kind;<sup>1</sup> (2) a tree is the cause of its own individual being, in a way inexplicable by merely mechanical laws, inasmuch as it is not only perpetually rebuilding its own organic structure according to the original type, but also perpetually elaborating for itself afresh the organic material out of which it thus rebuilds, by communicating to this very material its peculiar specific quality and constitution; (3) even a part of the tree, as a bud or a graft, so reproduces itself as to show that the part and the whole are reciprocally dependent, since, on the one hand, the leaf-eye of one tree, inoculated in the twig of another, becomes the cause of a structural growth according to its original kind alone, while, on the other hand, all the leaves of any tree are themselves products or effects of the whole tree as such; and, further, the same causal reciprocity manifests itself in the self-reparation of organic injuries. Kant next proceeds to distinguish between the two great kinds of causes, the efficient or real and the final or ideal. In the concatenation or series of efficient causes, each term stands as effect of its antecedent and as cause of its consequent, but not otherwise; the series moves forward only, never backward; in a single pair of terms, the first is always cause and the second always effect; there is no reciprocity whatever. But this is not true in the series of final causes. For example, the house is the cause of the rent, yet the

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<sup>1</sup>Observe how completely Kant is here dominated by Aristotle's notion that the universal inheres in the individual. The tree's kind (*Gattung*) is simply the essential nature common to all trees and found in every tree; hence, in reproduction, the parent-tree literally and merely reproduces *itself* in the offspring-tree, since, in both, this tree-nature is one and the same. Just so, under the same influence, argues Hegel (*Werke*, VI. 192): "The *Many* are, however, the one what the other is; each is One, or One of the Many; they are, therefore, one and the same." That is, to illustrate, the many horses, as individuals, have only one universal nature, which makes them all alike; each is what the others are; they are all, therefore, essentially, *one and the same specific horse*. Both to Kant and to Hegel, as to Aristotle, the *individual differences* are of no account, no scientific or philosophic value, and are therefore completely thrown away; nothing is retained but this one specific nature, absolutely identical in every specimen. Neither sees that this abstract concept of the *Gattung*, the vaunted *Begriff* itself, is a mere consequence of the infirmity of the limited human imagination. But what a chasm between them and Darwin!

idea of the rent, in the first place, was the cause of the house. Here each term is cause and each is effect of the other; the series moves both forward and backward; there is complete reciprocity. Now the organism exhibits reciprocity in the relation of cause and effect, which thereby becomes the relation of end and means; and Kant defines it accordingly. "An organized product of Nature," he says, "is that in which everything is *end*, and, reciprocally, also *means*." Such, in brief (omitting much), is the result of Kant's analysis of the organism, and he himself applies it to human society, in a footnote, as follows:

"Every member of an organization should certainly, in such a whole, be not simply *means*, but also at the same time *end*, and, since he co-operates in the possibility of the whole, be reciprocally determined by the idea of the whole according to his own place and function."

In only one point is it necessary here to criticise Kant's profound conception of the organism, but this point is vital. He nowhere brings out, even if he had it in mind, the far-reaching distinction between what may be called the indwelling and the outgoing, or the immanent and the exient, in all organic life—and all life is organic. He has much to say about "external teleology" as a relation between things of different kinds, more particularly as "advantageousness of one thing for others." But he overlooks a fact which is vital to ethics: namely, that every organism, and every organ in it, lives *partly for itself* and *partly for another*—is both end and means to itself and at the same time both end and means to another. That to live is, for an organism, to be both end and means to itself, Kant sees; but that to live is also to be both end and means to another, to wit, an including organism, he fails to see, or at least to say. For instance, in the human body, every constituent cell lives a special life of its own, is born, grows, decays, dies, and is excreted; but, while it lives, it lives no less in the larger and longer general, or systemic, life of the whole. Its life for itself, by which it is both end and means to itself, is only possible through its life for the whole, by which it is both end and means to another; and, conversely, its life for the whole is only possible through its life for itself. The unfailing reciprocity of these two special func-

tions in one and the same general function is the absolute condition of any life at all. Thus the finger must live for itself, as its immanent end, and appropriate to itself its own due share of the general nutriment, or it must wither for want of food and become useless to the hand; conversely, the finger must live for the hand, as its exient end, and enter into the hand's functions with its own due share of co-operation, or it must wither for want of exercise and perish as a finger. The case is precisely the same with the hand and the arm, with the arm and the trunk, and, in general, with every organ and the whole organism. So, too, if the whole organism undertook to live solely for itself as one system, and refused to minister duly to its constituent organs, it would die; if all the organs undertook to live solely for themselves in particular and refused to serve each other or the whole, they all would die. But this strict reciprocity between the individual organism and its own organs is not all; it must obtain no less strictly between the individual organism and the organic species; the universal organism to which the individual organism is itself an organ. Cut off all individuals from communion and co-operation with each other in their kind, and it and they must perish together. Every organ and every organism has thus a two-fold end, immanent as life for itself, and exient as life for another; and these two ends, each realizable through the other alone, constitute that total organic end which links organ to organ in the organism, and organism to organism in the species or kind. In this organic constitution of all life, with its characteristic principle of reciprocal finality as both immanent and exient, lies the scientific and philosophic foundation of ethical theory. Out of the simple organism, through ascending grades of animality and increasing consciousness, has been at last evolved the person; but the person bears in himself still the organic constitution, which, ripening in the light of self-consciousness into the ethical constitution, ripens also the principle of organic finality into the principle of personal ethicality. Precisely, however, because organic finality is itself both immanent and exient, personal ethicality becomes intelligible only as egoistic and altruistic in social ethicality; and thus, in ethics, individualism leads

necessarily to universalism, not as denial of individualism, but as absorption of it in wider, deeper, and higher thought.

Thus the natural foundation of ethics is the organic constitution as such, which, unconscious of itself so long as it remains merely vegetative, is developed into the personal-social constitution, as soon as it rises in the course of evolution into the form of ethical self-consciousness. The characteristic principle of the organism as such has now been shown to be that of an all-embracing *reciprocity of ends and means*, by which (1) each part lives immanently for itself, and exiently for the whole, while (2) the whole lives immanently for itself, as all its own parts, and exiently for a higher whole, as the genus of which it is itself a species, the inclusive organism of which it is itself an organ. The vegetative organism knows nothing of its own constitution, which at bottom is the self-manifestation of the All-Conscious in the form of the Unconscious. But the social organism rises gradually into self-conscious knowledge of its own constitution, in proportion as the individual ideals of its many constituent persons gradually coalesce in a universal social ideal. To effect this coalescence is the proper aim of philosophy as ethical theory; and it can be effected solely by making clear to all the organic constitution of the social ideal itself. Let us, then, study the social ideal a little more closely.

The general principle that "society is an organism," in recognition of which the most diverse schools (e. g. Kant and Comte, Hegel and Herbert Spencer) agree, means, in the light of the foregoing analysis, that the individual man is actually an organ to society as an actual organism; and that both maintain their healthy existence solely by actual reciprocity of ends and means. This is the real constitution of the human world, as determined by science and philosophy alike. Hence, because it is the nature of man, when pressed by evil, to dream dreams of a possible good, and to form plans for realizing it in the world, each and every one of us shapes some ideal of his own for the betterment of the general condition. In fact, the times exhibit, as never before, a swarm of conflicting, often self-destructive ideals of this possible "good," and there seems to be no acknowledged standard of reference by which to make plain

their wisdom or unwisdom. Yet Nature sets before us, easily to be read if we will but read it, her own ideal of the "good" in the organic constitution; for health is the unmistakable proof of the attainment of Nature's end, while disease is the equally unmistakable proof of its partial defeat. Why not apply to the ideal world this universal lesson of the real world, and shape our social ideal accordingly? For the ideal world is only the real world as it ought to be, and what it ought to be can be realized solely by developing what it is.

Judged by this principle, the ideal "good for man" is a more complete objective realization of his own organic constitution. Precisely as the person is related to society, so should the personal ideal be related to the social ideal. If the organic constitution is itself Nature's own ideal of the "good," evidenced by health as her reward for obedience to it and by disease as her punishment for disobedience to it, then it follows that person and society stand under the absolute moral obligation of realizing in conduct, personal and associated alike, that reciprocity of ends and means which is the fundamental law of the organic constitution. In this absolute authority of the organic constitution, as the very condition of life itself, and therefore, as the self-revealed and eternal ethical law of Nature herself, lies the ultimate reason, the authoritative and unanswerable "why," of all moral obligation.

Here, then, we have the reply to what Professor Sidgwick propounds as the two great ultimate questions of all ethical speculation: namely, "What is Right?" and "Why should I do it?" Right is actual, not merely intentional, conformity of conduct to the organic constitution. The reason why I should do it is that, by willing it, I will the health of the social organism, while, by willing the opposite, I will the disease, and so far the death, of the social organism. For in vain shall I seek (and herein lies the failure of all individualism in ethics) to separate my own health or my own disease from that of the organic body of which I am merely an organ or member. Disease of the lungs, or stomach, or heart, is itself disease of the body; the health of these is so far health of the body. Tersely but truly put, virtue is the will to live, and vice is the will



to die. When I will to live, by willing to obey the law of the organic constitution, I so far will at once my own life and that of the organism in which alone my own life is possible. When I will to die, by willing to disobey that law, I so far will at once my own death and that of society—am guilty, not only of suicide, but also of murder. In brief, since, on the one hand, all life is organism, and, on the other hand, all organism is reciprocity of ends and means in life, "Right" itself may be shortly defined as "Reciprocity," the one word which, largely understood, declares the whole ethical ideal. Hence no ethical saying ever transcended the lofty meaning of Confucius, if he meant all that his words contain:

"Tsze-kung asked, saying, 'Is there one word which may serve as a rule of practice for all one's life?' The Master said, 'Is not RECIPROCITY such a word? What you do not want done to yourself, do not do to others.'"<sup>1</sup>

It will doubtless be noticed how sternly objective and realistic are these answers to the two great ethical questions. But from this objectivity there is no escape. Ignorance of the law, in Nature as in the civil courts, is no excuse for transgression of it, and counts merely in mitigation of penalty. When I mistake poison for food, I die; my innocence is no reprieve from death. The unintentional wrongs of life make up more than half its misery, and "I did not mean to" brings little relief to a burdened conscience. The organic law of the world, written in every living organism as on tablets of stone, is irrevocable and inexorable; and we are all bound, as rational beings, to master it by understanding and obeying it. There is no other way. What this law exacts, not as your idea or mine, not as human idea at all, but as actual and vital fact, as the very condition of life itself, is all-pervading reciprocity of ends and means in the total constitution of everything that lives. This is organism, and organism is the ethical universal itself.

In the vegetative and animal organism, reciprocity of ends and means appears as *harmony*—simple harmony of organ and function in healthful vital equilibrium, in a self-moving, self-sustaining, and

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<sup>1</sup> *Confucian Analects*, XV. 23. The mere difference of form between the positive and negative expressions of the Golden Rule is absolutely immaterial; each, fairly construed, contains the other.



self-evolving whole of purely organic parts, each of which repeats in itself, as a smaller and included whole, the same organic constitution.

But in the moral organism (which is such by no mere metaphor or vague analogy, but rather such by the most literal and most rigidly scientific use of words, as the highest known form of real organization) this reciprocity of ends and means, this living harmony of organ and function in the person and in society, appears as *justice*—simple justice, equity, equality, in healthful ethical equilibrium, in a self-moving, self-sustaining, and self-evolving whole as an organism of persons, each of whom repeats in himself, as a smaller and included whole, a still deeper union of the organic and the personal constitutions. Through self-consciousness or self-knowledge, reciprocity of ends and means is exalted from unconscious harmony to conscious justice, and the constitutive principle of the mere organism is deepened, expanded, and elevated into the constitutive principle of the organism of persons. By this development individualism is swallowed up in universalism—not denied or displaced, but shown to be only one side or element in the divine truth of the real world.

The one absolute and all-inclusive word in ethics is "justice." Grounded in reciprocity of ends and means as organic harmony, its ethical formula is, perhaps, the ancient *cuique suum*—"to each his own," "give every man his due." If my neighbor is in misery, I owe him relief; if he is in happiness, I owe him sympathy; if he is a hero, I owe him admiration; if he is a sneak, I owe him contempt; if he is an oppressor, I owe him indignation and resistance; if he is oppressed, I owe him pity and succor; if he is a victim of vice, I owe him an effort to reform him; if he is good and affectionate, if he loves me, I owe him reciprocating love; and so on to the end. This, and nothing less, is reciprocity or justice between man and man, according to their varying characters, conditions, and capacities. Reciprocity between the individual and society is well formulated in the old saying—"each for all and all for each"; and perhaps I may be pardoned for quoting here an attempt of my own to express a little more fully the essential ideal of social reciprocity, in

the form of a sketch designed long ago to serve as the basis of organization for a free religious association :—

"PREAMBLE : *Whereas*, The grand end of human society is the freest, fullest, and highest development of the individual, and the special end of every minor organization should be in harmony with, and in furtherance of, this general end of society itself ; and

"*Whereas*, The grand end of the individual soul is the realization, in itself and in the world, of the highest Ideal of Humanity, and is thus identical with the great cause of universal human progress :

"Article I. Therefore, we hereby associate ourselves into a Free Brotherhood, for the purpose of helping each other and our fellow-men in the endeavor after the perfect Spirit, Life, and Truth.

"Article II. The only condition of fellowship shall be sympathy with our purpose, and willingness to co-operate in it."<sup>1</sup>

In this large meaning or conception of the word, *reciprocal justice* is itself the *social ideal*, covering alike reciprocity between man and man and reciprocity between the individual and society. But reciprocal justice is not to be accomplished on the Benthamite principle: "Everybody to count for one, nobody to count for more than one." That maxim is pure individualism—finds universal humanity immanent in every individual, despises and wipes out all individual differences, and treats all men as absolutely alike and of equal worth. Not so universalism. This treats all men as partly alike and partly different, respects the likeness no more than the unlikeness, and seeks to cultivate in every man his individual difference in perfect conformity to his universal nature, whereby his personal ideal itself is subordinated to the universal social ideal of reciprocal justice as his "higher law." The moral "worth" of a man is proportioned to the degree of his free self-subordination to the social organism as his true universal.

Here emerges to view the profound objectivity or realism of universalism in ethics. "Right" becomes something infinitely more than the individual's mere purity of intention, mere rightness of purpose, mere "virtue" or "perfection," which is held up by in-

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<sup>1</sup> *The Radical*. A Monthly Magazine devoted to Religion. Edited by Sidney H. Morse. Boston : Adams & Co., 25 Broomfield St.—article on "Organization," in the number for December, 1866.

dividualism and idealism as the complete ethical ideal. If Kant, as we saw, found nothing in the world or outside of it which could possibly be conceived as unqualifiedly good except the "good will,"—and if Hegel was unable to advance an inch beyond this "Autonomy" of the individual will as such,—not so universalism. Universalism finds nothing unqualifiedly good in the world except *the good will so realized as to work objective justice in the social organism*. The "good will" is merely subjective justice: *the good deed must be both subjective and objective justice*. Subjective justice alone is merely the incomplete right, the half-right, the inner right which may yet be the outer wrong. But objective justice is that inner right which knows enough to make itself the outer right, too. The scientific criterion, and the only truly ethical criterion, of the "right" in human conduct, whether personal or associated, is twofold:

1. The conduct itself must, first of all, actually conform to the organic constitution, that is, must be objectively just; and
2. It must be meant to conform to the organic constitution, that is, must be subjectively just.

The social ideal demands objective justice; the personal ideal demands subjective justice; and no conduct is "right," in the full and high sense of the word, which does not meet both demands in full, by subordinating the personal ideal to the social ideal as its "higher law."

The common notion that the agent is necessarily blameless, if he does but intend to act rightly, is mischievously immoral—Kant and Hegel to the contrary notwithstanding. It is nothing but a piece of pernicious sentimentalism, for it excuses the agent from that painstaking, conscientious, exhaustive, *intellectual investigation of facts*, subsisting objectively to himself in the organic constitution of the human world, which, simply because he is a rational as well as a moral being, he is *bound to learn, to know, and to obey*. Such knowledge is no less his "duty" than is his simple innocence of intention. If, in consequence of this principle, it turns out that "men of good will" *cannot* "find their way without a moral theory," and that the "man of good will" is first of all bound to furnish himself with a good moral theory, that is simply to say that the foundation

of all good conduct is knowledge—that thought must lead, feeling and will must follow: in a word, that Infinite Wisdom has so built up this world on the organic constitution, and on objective justice as its ground-principle, that the fool is constitutionally incapacitated for being a saint.

But, on the other hand, if the personal ideal must find in the social ideal its “higher law” as objective justice, no less must the social ideal find in the personal ideal its own “higher law” as subjective justice. The same reciprocity of ends and means which obtains between society and the person obtains no less between their respective ideals; otherwise, the ideal itself would not be the “ought to be” of that which “is.” The ethical meaning of this principle is that, when men act together as one organic body, they are bound, in their associated conduct, not only to do justice, but also to intend justice. In other words, their collective conduct should be governed, just as much as their individual conduct, by the very highest and purest ethical intention. They are morally bound to be as intelligent, scrupulous, patient, highminded, honorable, and just, when they act together, as when they act alone. They are bound to study out the real relations between society and the individual, in order that society may do him no wrong, but objective good only, in all its own collective activity. The only just end of collective or social activity is the highest objective good of the individual; but this just end can never be fulfilled objectively unless it is first willed subjectively. The loftiest standard of integrity, honor, benevolence, justice, and wisdom, should enter into the collective act of the whole,—it should dominate and inspire the act of society,—just as much as it should enter into and inspire the act of the individual; otherwise, the end of objective justice cannot possibly be realized. In all social action or conduct, if objective justice is the end, subjective justice must be the means; the end will not be attained unless it is willed to be attained. Hence every person who acts organically with his fellows is as false to them as he is to himself, unless he puts into this associated act the highest principle of his own personal act. If he does this, if all do it, too, then the act of society, on the basis of previous thorough knowledge of what the or-

ganic constitution actually requires in the case at hand, will be both subjectively and objectively just,—in one word, *right*. In this way, the social ideal of objective justice *to all* subordinates itself to the personal ideal of subjective justice *in each*, as its own “higher law,” in the sense that any end must depend upon its only possible means for objective realization.

In this way, likewise, we see clearly why the traditional separation of ethics and politics is a great, grave, and most injurious mistake. Ethics knows no such separation, but claims control of the whole field of politics by right of eminent domain. Political action, just as much as personal action, is conduct; and ethics is the science of conduct, whether personal or political, individual or national. Hence international law will find a solid ground in reason for its now unsanctioned principles, when it comes to see that the organic constitution, the principle of objective justice, is the fundamental ethical law of the universe—that very “law of Nature” which it has thus far sought for in vain, but which governs the ethical relations of nations no less than it governs those of individuals. Masses of men are still men, and carry men’s personal natures and personal ideals into all their collective actions. When, discarding the terribly false maxim that “corporations have no souls,” and learning that corporations have exactly as many souls and exactly as much soul as have the men that make them, each man elevates his corporate action to the loftiest standard of personal honor, and learns to submit his conduct in politics and in business, no less than in private life, to the eternal law of *objective and subjective justice*, one and indivisible in the constitution of the social organism, then indeed will the world become something better than the den of wild beasts which it now too often seems. For then, whether acting in greater or in smaller masses, whether organized as nations or as minor corporations, many men will have learned to act as one man, and that one man to act by the personal ideal—which is subordination of the social ideal to the personal ideal as its “higher law.”

To recapitulate: the social ideal is the organic constitution of the whole as a whole, conceived as free self-development of society as it is into society as it ought to be; and its organic principle of

development is objective justice through subjective justice. The personal ideal is the organic constitution of the part as a part, conceived as free self-development of the person as he is into the person as he ought to be: namely, an organ (1) living immanently for himself, (2) living exiently for his inclusive organism, and (3) living these two lives as one, each through the other alone; and its organic principle of development is subjective justice through objective justice. "Duty," or the "Ought," or "Moral Obligation," is the indefeasible claim of the organic constitution in society and in the universe itself (1) to determine the *ideal aim* in the person, and (2) to determine thereby the *real conduct* of the person. "Objective good" is the organic constitution as such, and "subjective good," or health, is conformity to it; the "bad" is disease or disorganization, degeneration of the organic into the merely mechanical, relapse of the living reciprocity of ends and means into the lifeless sequence of mere cause and effect. "Virtue" is the will to live, to be an organism; "vice" is the will to die, to be a corpse or mere machine. "Right" is reciprocity of ends and means, developed by self-consciousness from the simple "harmony" of the organism as such into the objective and subjective "justice" of the person as such. "Perfection," "righteousness," or "virtue," as the essential will to live by realizing the ideal of all life, is the substance of which "happiness" is the shadow—its fitting, natural, and normal accompaniment. But, just as the tropical traveller, when the sun is in the zenith, will find himself accompanied by no shadow save that which is directly under him, so, also, in some torrid tract of self-sacrifice to which duty may conduct him, life's traveller may find himself bereft of all happiness save that which he resolutely tramples beneath his feet. Such was that nameless captain on some Western lake, who, when his vessel caught fire, steered it to the shore against the wind and rescued his passengers from death, while he himself, fanned fiercely by the back-sweeping flames, perished in torture at his post. Heroism of such sublimity as this exhibits a loyalty to the social ideal which paralyzes the tongue of praise, and admits of no explanation by any immanent or self-returning end. The ultimate aim of a martyrdom so pure was necessarily disinterested or

exient—directed not to himself, not to his own “happiness,” not even to his own “goodness,” but simply and solely to the good of those for whom he bore the agony and died. And this is the apotheosis of the human will—its pure self-identification with the Divine Will, its pure self-dedication to God.

Thus universalism in ethics culminates in the principle of EXIENCY—of the exient end and the immanent end as reciprocally necessary to each other, in order to constitute that total organic end by which alone the individual finds his place in Nature, realizes his ideal in Society, and achieves his destiny in God. By this principle of exiency as its innermost ethical content, the organic constitution appears as universal reciprocity of ends and means in Biology, universal co-operation in Sociology, universal objective and subjective justice through universal reciprocal service in Ethics, and universal self-consecration to the Divine in Religion. Substitution, therefore, of universalism for individualism, as the ground-principle both of ethical theory and of ethical practice, constitutes that “advancement of ethics” which is the deepest spiritual need of the modern world.

FRANCIS ELLINGWOOD ABBOT.

CAMBRIDGE, MASS. October 31, 1892.



## OUGHT THE UNITED STATES SENATE TO BE REFORMED?

N EARLY a year ago I read in *The Open Court* (December 28, 1893) a small note that raised large hopes. I understood it as a promise from Professor von Holst that he would soon deal "at full length" with the criticisms of General Trumbull on the United States Senate. At last, I thought, we shall have a competent treatment of the gravest constitutional problem from a cosmopolitan publicist, one not liable to our hereditary political provincialism, which can only answer, "Great is Constitutio of the Americans!" Anticipating fulfilment of this hope, I eagerly perused the Professor's contribution in *The Monist* (October, 1894). One would not usually look for criticisms of organic law in a Fourth-of-July oration: on that day the eagle is not apt to be punctured by a pen from its own spread wing; yet here, too, the Professor promises "later on" a "serious examination" of the question raised by myself and others concerning the Senate. The "later on" seemed to refer to a further part of the oration, but I must have misunderstood it. The Professor devotes himself to the bicameral system; but the question is not whether the bicameral system is good, but whether a particular form of it, unknown to any State or nation except our federal Union, is defensible. No one knows better than von Holst that the great statesmen of the Constitutional Convention of 1787 regarded the unequal representation established in the Senate as an outrage on the bicameral system, and that the men who chiefly forced it on them with menaces admitted its unfairness in principle. Does the Professor regard the protests of Franklin,

Hamilton, Wilson, Mason, Randolph, Morris, Madison, as wrong or right? I search his oration in vain for an answer. At one point he starts out bravely, as if about to meet the question, but the outcome resembles Emerson's description of a far-western road, which, beginning as a fine avenue, changed to a squirrel-track, and ran up a tree. The Professor's tree is Bicameralism; his oratorical avenues all lead to it; but I do not propose to follow him thither, although he has tried to draw me on that trail. Criticising my contention in *The Open Court* (March 15, 1894), that "the entire abolition of the Senate does not come within the range of practical politics," he says: "Irrespective of what the chances of success during his life-time might be, he owes to himself, as a good patriot, to exert himself to the utmost to have this vicious receptacle of 'American snobbery' razed to the ground." But I have a preference for evolutionary methods of reform, and have a right, since he makes me a clothes-horse for his rhetoric, to remind him that, the Fourth of July being over, we await his "serious examination of the question, whether he, and those who more or less agree with him, are right in asserting that the Senate is a pernicious incubus fastened upon the republic by the short-sightedness, the narrow prejudices, and the self-seeking provincialism of the authors of the Constitution." These are the Professor's words, not mine; I should substitute for the last five words, "some members of the Convention"; but I will not stop to quarrel about the phraseology, if the Professor will bear in mind that it is no answer to an argument to travesty its conclusions, and will frankly meet the issue.

It is with a genuine expectation that he will do so that I propose to restate the matter more fully, both historically and in connexion with recent events. But before doing so I am compelled to make a few reclamations. In my paper on Senatorial Reform I said:

"The Constitution of 1787 was really a treaty between thirteen sovereigns, the smaller empires refusing to unite unless their inherited supremacies were secured the power to overrule the voice of the nation. This was the real foundation of the Senate. But in the discussions of the Convention (1787) that doctrine of sovereignty, *discredited even in England*, was veiled, though the veil was as discreditable

as the motive concealed. The necessity being first of all to get the second Legislature established in the Constitution, it was done with an innocent air, and without discussion, on the mere statement that England had two Houses, and that two Houses had always proved favorable to liberty."

This the Professor quotes (omitting, curiously, the four words italicised) and on the score of that "veil" accuses me of "historical color-blindness." "There was nothing whatever 'veiled' about this question in the Convention," he says, and goes on into a page of quotations concerning the division of the Legislature into two branches. But I do not say the scheme of two branches was veiled. It was the discredited doctrine of State sovereignty, and the intention to force it into the second chamber, which were veiled. Where is the color-blindness? It is in the Professor seeing a plain veil as a red rag, rushing at it, but in another part of his oration confirming my history. He says: "To make the Senate besides a representation of Statehood was altogether an afterthought," and "so far as we can learn from the exact sources, the thought of making the Senate a representation of the States as such was at first not entertained by a single member." I am surprised that Professor von Holst can suppose that the members from the small States could have threatened to break up the Union upon an afterthought, a point on which they had brought no instructions. However, my statement is not merely inferential; there are "exact sources" of information, among them the following Note by Madison on the New Jersey plan, introduced in the Convention June 15, 1787, which proposed only one House, and that constituted like the present Senate, except that this body, elected by the State Legislatures, was also to elect the Federal Executive! Madison says:

"This plan had been concerted among the Deputations, or members thereof, from Connecticut, New York [then opposing Hamilton's efforts for a National Government], New Jersey, Delaware, and perhaps Mr. Martin from Maryland, who made with them a common cause, though on different principles. . . . The States of New Jersey and Delaware were opposed to a National Government, because its patrons considered a proportional representation of the States as the basis of it. The eagerness displayed by the members opposed to a National Government began now to produce serious anxiety for the result of the Convention. Mr. Dickinson [Delaware] said to Mr. Madison: 'You see the consequence of pushing things too far.

Some of the members from the small States wish for two branches of the General Legislature, and are friends to a good National Government ; but we would sooner submit to a foreign power, than submit to be deprived, in both branches of the Legislature, of an equality of suffrage, and thereby be thrown under the dominion of the larger States.' " (*Madison Papers*, ed. 1840, Vol. II, p. 862.)

John Dickinson, who had refused to sign the Declaration of Independence, partook of the smallness of the State he represented (Delaware), but was a more large-minded man when he became a Pennsylvanian. He and his fellow small State men had, before that secret communication to Madison, been making speeches in the Convention for some weeks, and their worst intimation had been that, if they were not allowed State-equality, Delaware, and perhaps Connecticut, might withdraw their members from the Convention. These petty "sovereigns" began their terrorism only after the Convention, despite such intimations, had received (June 13) its Committee's Report, assigning proportional representation to both branches. They then asked a day for consultation, and on bringing in their rival scheme (June 15) secretly revealed to Madison their "doctrine of sovereignty," which was to rule or ruin. They had resolved to perpetuate the Confederation, and to strengthen its inequitable feature, and they began by overruling the voice of the Convention. But that menace of a foreign alliance, whispered to Madison on June 15 was still veiled from the Convention for two weeks. It was not until June 30 that the threat was made in the Convention. Hitherto their position had been that their State rights and independence would be at the mercy of the large States. This Dr. Franklin met with a compromise (June 30) "that in all cases or questions wherein the sovereignty of individual States may be affected, or whereby their authority over their own citizens may be diminished, or the authority of the General Government within the several States augmented, each State shall have equal suffrage." Franklin's proposal tore off the veil. It was now revealed that these small States were not acting in self-defence, but resolved, as I said in my *Open Court* article, quoted by von Holst, to secure to their inherited supremacies "the power to overrule the voice of the nation." They scornfully rejected Franklin's compromise, and the

plan stood nakedly what Hamilton declared it, "*a contest for power, not for liberty.*" "There is no middle way between a perfect consolidation, and a mere confederation of States," said Bedford of Delaware, who closed his unpatriotic speech as follows :

*"He was under no apprehensions. The large States dare not dissolve the Confederation. If they do, the small ones will find some foreign ally, of more honor and good faith, who will take them by the hand, and do them justice."* (Madison Papers, Vol. II, p. 1014.)

Under cover of that pistol the Convention surrendered. I submit that these facts amply support my challenged statement about the veil. And I am reminded by Bedford's speech of another point questioned by Professor von Holst. I stated further, that "when the subject of disproportionate representation in the Senate came before the Convention, it was supported as a principle only on the ground that in the British Parliament small places, with little population, were represented equally with the largest constituencies." Von Holst inserts after my word "only" a note of admiration "(!)." In the speech of Bedford, quoted above, he said : "Look at Great Britain. Is the representation there less unequal? But we shall be told again, that is the rotten part of the Constitution. Have not the boroughs, however, held fast their constitutional rights? And are we to act with greater purity than the rest of mankind?" On June 20 Lansing of New York said, "A great inequality existed in the counties of England. Yet the like complaint of peculiar corruption in the small ones had not been made." Several of the advocates of disproportional representation had (as will be shown hereafter) admitted its unfairness *as a principle*, and if Professor von Holst can find other defences of it, *as such*, in the Debates, except this citation of the now extinct rotten borough system, I shall admit my error. Perhaps I should have added an idiotic remark of Patterson of New Jersey, who compared the large and the small State to the rich and the poor man, who ought to vote equally ; the real parallel of his proposal being to make, by legal compulsion, the poor man's penny equal in purchasing power to the rich man's dollar. But von Holst can hardly regard that as an argument.

On another point Professor von Holst bases a charge of histor-

ical inexactness on what is really a misquotation of my paper by himself. To my sentence in the preceding paragraph, challenged by his note of admiration, he appends, with but three intervening dots, the following mutilated quotation from my paper: "Furthermore, besides being 'in the European fashion' . . . it [the Senate] has been as a fashion repeated in all the States." Thereupon he easily accuses me of "the erroneous assumption that the States have "as a fashion repeated" the federal Senate. That (he continues) "is hitching the cart before the horse. It is repeatedly and explicitly stated in the debates of the Convention that it repeated the 'fashion' set by all the States with the exception of Pennsylvania." Now the three dots alluded to "veil" forty lines of my article. Their omission conveys the impression that I was continuing the historical statement, whereas I had left it, and was referring to the fashion prevailing not in the original thirteen, but in our present forty-four States. In the passage which the Professor drags back to the Convention, I am giving reasons why the Senate is not likely to be abolished, but may be reformed:

"The Senate has gradually taken root in American snobbery, it offers a number of lordly offices for eminent office-seekers, and it represents provincial pride. Furthermore, besides being 'in the European fashion' (superficially, for in no other country is there a second chamber so constituted) it has been as a fashion repeated in all the States. Had the substance as well as the form of the national Senate been reproduced in the several States the whole system must have long ago broken down, like the 'rotten borough' anomaly in England."

I acquit Professor von Holst of intentional unfairness, and suspect that he looked through my article less to weigh its words and arguments than to pick materials for a unicameral man-of-straw to be demolished amid fourth-of July plaudits. I do not underrate the Professor's eloquence, but value higher his ability as an investigator of political history. As in our American Revolution the guiding intellects were those of Paine from England and Hamilton from the West Indies, and as the clearest study of our Democracy came from the French De Tocqueville, it is in the line of our traditions that we should receive new light from thinkers trained in countries older in culture and experience. John Stuart Mill once expressed to me his



surprise that there had not arisen in the United States any school of constitutional study and self-criticism. Where can such a school be more appropriately founded than in Chicago, the great western metropolis, where the Proportional Representation League was formed during the World's Fair; and who is more fitted to forward this new departure than von Holst? I cannot feel that he is rightly represented in the implications of the oration before me. That he does not agree with General Trumbull's way of putting it, or with mine, is of little importance compared with the fact that he does not adopt the arguments in favor of disproportionate representation. In the one allusion which seems to favor such uniquely inequitable representation he throws away the argument he had seemed to accept: he cites Pomeroy as affirming that we have in the Senate anchored the principle of local self-government, but presently says this principle would survive the abolition of the Senate. "This principle," says von Holst, "is the vital force not only of Anglican but of Germanic liberty." Exactly. Scotland does not possess less local self-government because it cannot neutralise the vote of England, nor Hesse-Cassel because it cannot balance the voice of Prussia, in those imperial Parliaments. Had von Holst found any argument sustaining the senatorial anomaly would he not have stated it? He recognises the deterioration of the Senate, and is not disinclined to a constitutional amendment that would make it popularly elective. Does he really mean to exclude an amendment which would render it representative of the American people? Edmund Randolph noticed that after the Constitution was ratified there was observable an extreme solicitude to cherish its defects. Whether this was the mother's proverbial favoritism for her deformed child, in the case of the Senate, or the swollen pride of "Prerogative" (Hamilton's label for the power of the small States), that solicitude continues. It survives the tragedies it has cost; it outlives demonstrations of the Senate's worthlessness as a court of impeachment, and repeated proofs that in so small a body the balance of power is easily purchasable; and to-day we find eminent men crying, Reform if you will, and as you please, but leave us—O leave us—the power of Delaware to neutralise the power of New York! I refuse to believe



that this is the voice of von Holst until he says so plainly, and, regarding him as a judicial man, when not engaged with patriotic orations, I submit to him our fair claim that he should deal with the question at issue (which is not Bicameralism but Disproportionate Representation) apart from the shortcomings of this or that writer on the subject. I submit, too, that however necessary it may be on July 4 to describe the Constitution as a "master-work," notwithstanding the many patches which have mended that pre-scientific document, such euphemistic commonplaces are not what we have the right to expect from a public teacher like von Holst. And I further submit the following facts and contentions.

"We may indeed with propriety be said to have reached almost the last stage of national humiliation," are words of Hamilton, cited by von Holst, which represented the feeling of the greatest men in America, and led them to gather in the Convention of 1787. But in that Convention they were confronted by local and sectional interests, of which two were essentially unrepblican, and at the same time strong enough to compel the Convention to establish them in the Constitution. These two were Slavery and State-sovereignty. They were twin barbarisms, and demonstrated to be such by the chief statesmen of the Convention, whom they conquered by selfish and unpatriotic recklessness of consequences, and by their treacherous combination. The blush of the Convention on admitting the barbarisms is visible in its omission of their names. Neither "Slavery" nor "Sovereignty" was considered a word worthy to enter the American Constitution. But by their joint work the blush of the Fathers ultimately became the shed blood of their children. It has required a century of discords and tragedies to repair even in part the disgraceful compromise of our overpraised ancestors with Slavery, whose miserable *sequelæ* survive under the protection of its twin or *pal*—a superstition of State-sovereignty which prevents the national conscience from restraining the savagery of race-hatred, or securing the constitutional rights of its citizens, if a State chooses to deny them; insomuch that it is easier for the Nation to protect an American in Europe than in one of its own States!

The framers of the Constitution did not foresee the gigantic

power that Slavery was to attain; they supposed that it would gradually die out of the South as it was dying out of the North, and that the term assigned to the Slave Trade, 1808, would destroy its root. At any rate, we will give them the credit of so believing. But they made no such mistake in the unrepresentative principle which they established in the Senate. No writer can now add anything to their arguments and pleadings against it, except to point to the miserable fruits which have fulfilled the prophecies and justified the indignant protests of the ablest men among them.

"Gouverneur Morris declared proportionate representation 'so fundamental an article in a national government that it could not be dispensed with.' Madison affirmed 'the necessity of providing more effectually for the security of private rights. Interferences with these were evils which had, more perhaps than anything else, produced this Convention. Was it to be supposed that republican liberty could long exist under the abuses of it practised in some of the States?' He declared equality of States in voting 'inadmissible, being evidently unjust.' Breatly, even in a speech advocating such equality, said, 'Is it fair, then, it will be asked, that Georgia should have an equal vote with Virginia? He would not say it was.' Hamilton was 'fully convinced that no amendment of the Confederation, leaving the States in possession of their Sovereignty, could possibly answer the purpose.' 'The members of Congress, being chosen by the States and subject to recall, represent all the local prejudices.' 'As States are a collection of individual men, which ought we to respect most, the rights of the people composing them, or of the artificial beings resulting from the composition? Nothing could be more preposterous or absurd than to sacrifice the former to the latter. It has been said that if the smaller States renounce their *equality*, they renounce at the same time their *liberty*. The truth is, it is a contest for power, not for liberty. Will the men composing the small States be less free than those composing the larger?' 'The State of Delaware, having forty thousand souls, will lose *power* if she has one-tenth only of the votes allowed to Pennsylvania, having four hundred thousand; but will the people of Delaware be less free, if each citizen has an equal vote with each citizen of Pennsylvania?' (It was Hamilton who moved 'that the rights of suffrage in the National Legislature ought to be proportioned to the number of free inhabitants,' and 'that the right of suffrage in the second branch ought to be according to the same rule as in the first branch.' Edmund Randolph said, 'The true question is, whether we shall adhere to the federal plan, or introduce the national plan. The insufficiency of the former has been fully displayed by the trial already made.' 'We must resort to a *national legislation over individuals* [italics in Madison's report], for which Congress are unfit.' Dr. Franklin reminded the Convention that the 'method of voting by States was submitted to originally by Congress under a conviction of its

impropriety, inequality, and injustice, and that it was done because in the words of their resolution (September 6, 1774) they were not "at present able to procure materials for ascertaining the importance of each colony." Mr. Pierce considered the equality of votes under the Confederation as the great source of the public difficulties. 'The members of Congress were advocates for local advantages.' George Mason asked, 'Is it to be thought that the people of America, so watchful over their interests, so jealous of their liberties, will give up their all, will surrender both the sword and the purse to the same body,—and that, too, not chosen immediately by themselves. They never will. They never ought.' Mr. Williamson 'begged that the expected addition of new States from the westward might be taken into view. They would be small States; they would be poor States; they would be unable to pay in proportion to their numbers, their distance from market rendering the produce of their labor less valuable; they would consequently be tempted to combine, for the purpose of laying burdens on commerce and consumption, which would fall with greater weight on the old States.' James Wilson (afterwards Justice of the Supreme Court) said, 'The leading argument of those who contend for equality of votes among the States is, that the States, as such, being equal, and being represented, not as districts of individuals, but in their political and corporate capacities, are entitled to an equality of suffrage. According to this mode of reasoning, the representation of the boroughs in England, which has been allowed on all hands to be the rotten part of the Constitution, is perfectly right and proper. They are, like the States, represented in their corporate capacity; like the States, therefore, they are entitled to equal voices—Old Sarum to as many as London. (The 'rotten borough system' prevailed in Connecticut and one or two other States.) 'The gentleman from Connecticut (Mr. Ellsworth) had pronounced, that if the motion should not be acceded to, of all the States north of Pennsylvania one only would agree, to any General Government. . . . If the minority of the people of America refuse to coalesce with the majority on just and proper principles, if a separation must take place, it could never happen on better grounds. The votes of yesterday against the just principle of representation, were as twenty-two to ninety, of the people of America. . . . The question will be, shall less than one-fourth of the United States withdraw themselves from the Union, or shall more than three-fourths renounce the inherent, indisputable, and unalienable rights of men, in favor of the artificial system of States? . . . Such an equality will enable the minority to control, in all cases whatsoever, the sentiment and interests of the majority."

I suppress no arguments on the other side. Towards the close of the debate Wilson declared, "The justice of the general principle of proportional representation has not, in argument at least, been contradicted." Madison repeatedly reminded the leaders of the small States of the same thing. "It was admitted by both the gen-

tle men from New Jersey," he said, "that it would not be just to allow Virginia, which was sixteen times as large as Delaware, an equal vote only;" and at another time he "entreated the gentlemen representing the small States to renounce a principle which was confessedly unjust; which could never be admitted; and which, if admitted, must infuse mortality into a Constitution which we wished to last forever." The admissions and the confessions were not denied. "Their language was," says Madison, "that it would not be safe for Delaware to allow Virginia sixteen times as many votes." That is, they were not considering the rights of man at all, not the people, but animated by a petty pride of imperial sovereignty which George the Third himself would have abhorred. Let Hamilton's declaration be borne in mind, that these small States were not contending for their own independence, or for the local self-government which Pomeroy and von Holst say is "anchored" in the Senate. Protection for these, more ample than they needed, was offered them in the proposal of Franklin that in all questions affecting State rights or local interests the States should have equal votes. In rejecting that concession they demanded the right of Delaware to balance Pennsylvania in *Pennsylvania's own concerns*. The small States had the giant's power, in their ability to rule or ruin, to refuse union and form alliance with England, which still held the six military posts in this country, and awaited eagerly an opportunity to recover her lost colonies. They thus had the power of a giant, and they used it like a giant. The impressive speech of Wilson (June 30) was replied to by the unpatriotic menace of Bedford, that they would find a foreign ally. Bedford was rebuked by Rufus King and Edmund Randolph, but his arrow had reached its mark, and on July 5 the Convention, fresh from celebration of a festival of human equality, received from its Committee a report in favor of repudiating that equality. Again and again had the just principle been affirmed by the Convention, with majorities representing three-fourths of the people of America, but now began the disgraceful surrender of these to the one-fourth.

And it was the fourth which had shown itself least patriotic. Under the Confederation Rhode Island had not only refused the re-

quisitions of Congress, but it refused to send any representative to the Constitutional Convention in which the other small States were securing for it equal legislative power with New York. New Hampshire was not represented in the Convention until a month and nine days after the day appointed for its session. New Jersey by express act had violated the Federal Articles, by refusing compliance with the requisitions of Congress. Connecticut, ruled by rotten boroughs, had to be bribed with public land to acquiesce in a decree constitutionally awarded against her claim on territory of Pennsylvania; it had also sent to Congress its refusal to comply with its constitutional requisitions. Maryland, whose representative, Luther Martin, spoke (June 27, 28) more than three hours in favor of State sovereignty and equality, had navigation laws which treated citizens of the other States as aliens. Such was the provincial selfishness which coerced, by threats of disunion and foreign alliance, three fourths of the people of America. Even when members enough had surrendered to enable the proposal to pass (July 7) the opponents represented two thirds of the American people. "This fundamental point," said Wilson, "has been carried by one third against two thirds."

It is not necessary to give space to the further struggle for the forlorn hope. It is important to observe that in this case none of the advantages that may be claimed for the power of a minority applied. The minority that founded the Senate were not either in means, culture, or patriotism, equal to the statesmen they subdued. All their brains together would not have made a Franklin or a Hamilton. And the Chamber they founded was provided with no means whatever for securing in it men who would revise with more learning the measures of the representatives, or check their precipitancy. Whether the Senate has served any such purpose is a matter to be dealt with presently; I only make here the historical point that in its origin the Senate represented not only the control of three-fourths of the people by one-fourth, but of the greatest statesmen by their inferiors in every sense. Professor von Holst is quite right in saying that the English House of Lords renders eminent service in compelling Commons and people to give fair chance to "the sober second thought," but the above facts discount his added remark: "Read

the debates of the federal convention and of the ratification conventions and *The Federalist*, and you will soon find out whether this was not one of the most essential functions, nay, pre-eminently the function assigned by the fathers of the Constitution to the Senate." So far as debates in the federal Convention are concerned, it is true enough that their proposal of a *second chamber* was to secure the sober second thought, but I would like to know where the Professor finds in those debates any expectation that the *Senate*—that is, after disproportional representation was imported into it—would fulfil such function. And it is from these debates of the Convention, where thoughts were expressed in the freedom of secrecy, that the only clear light can be obtained on the subject. In the State ratification conventions the merits of such questions were subordinated to a choice of evils. The anonymous papers called *The Federalist* represent advocates making out the best case they can for an instrument whose alternative seemed to them national dissolution. In the same spirit all but three of the great men signed a Constitution whose injustice in a fundamental point, and faults in others, they had demonstrated. "The moment this plan goes forth," said Gouverneur Morris, "all other considerations will be laid aside, and the great question will be, shall there be a National Government or not; and this must take place, or general anarchy will be the alternative." Governor Randolph pronounced some features of the Constitution "odious," but he carried Virginia for it. Hamilton said: "No man's ideas were more remote from the plan than his own were known to be; but is it possible to deliberate between anarchy and convulsion on one side, and the chance of good to be expected from the plan on the other?" It was at least a *chance*, and its rejection seemed certain ruin. *The Federalist*, however useful, is a very misleading work if it is not remembered that it was written by Hamilton, Madison, and others, in order to palliate or conceal the faults of the Constitution, in order to secure its ratification, as the only alternative of anarchy. In my opinion, they committed a grievous mistake in all of their concessions. Had the large States, representing three-fourths of the nation, united, as Wilson advised, to form a republic (which this country has never been), the petty sovereignties would



have all come in, like Bo-Peep's sheep, bringing their tails behind them. But it is of no use now to consider what might have been. It is important that the people, in presence of recent senatorial oppressions, should study the history of that anomalous institution, and understand that instead of its being, as Fourth-of-July orations would persuade us, an expression of the wisdom of our patriotic fathers, its vices were recognised by them, its evil fruits foreseen, and it was accepted only as the alternative of the ruin threatened by an unpatriotic and very small minority.

In *The Forum* for November, 1893, an article appeared from the pen of Professor von Holst in which he indignantly arraigned the behavior of the Senate in a recent case, and says: "A clear majority is for the unconditional repeal of the Sherman law, and therefore the correct preamble of any compromise measure should read thus—'Whereas the majority has allowed itself to be bullied by the minority, be it enacted'—." But why should a minority in the Senate not defeat the majority by bullying or any other means? That is the original senatorial rôle. The above history proves that the Senate was born of a bullying minority. Obstruction? Had it not been for obstruction placed by some half dozen men in the Convention in the way of forming any government at all, the Senate, as now constituted, could not have existed. The Convention of 1787 was itself a Senate; and if Professor von Holst is indignant at present senatorial bargains, as between the tariff hucksters and silverites, what has he to say of the bargain that gave slave-owners their fugitive-slave clause and additional representation for their non-voting slaves? Were they specimens of our Founders' wisdom and virtue? In his article in *The Forum* Professor von Holst searches in vain for any authority that can check the power of obstruction in any minority, however small, of the Senate, and his desperate resort to the influence of the press and public opinion is, to my mind, a confession that the evil is organic, without other than organic remedy. He says it is unconstitutional, but of what value is an inferential power for whose application there is no apparatus? Let him ponder the words of the great Justice Wilson in the Convention: "If equality in the second branch were an error that time would correct, I would



be less anxious to exclude it, being sensible that perfection is unattainable in any plan; but being a fundamental error, it ought by all means to be avoided. A vice in the representation, like an error in the first concoction, must be followed by disease, convulsions, and finally death itself."

The recent struggle on the tariff, in which a handful of purchased Senators were able to defeat the suffrage of the nation, the House of Representatives, the Executive, and the majority of their own chamber—the whole nation—reproduces a picture of the scene when the Senate was founded. It has also revealed the fact that there must be a death, as Wilson predicted. Whether it will be that of the nation or of its chief unrepresentative feature, remains to be seen. Professor von Holst says that the abolition of the Senate, as now constituted, would necessitate a number of other far-reaching changes in the Constitution: unquestionably; but there is no fear that they will come too fast. Our country is styled a republic, but it is only by courtesy. There has never been a day when this nation was a republic. Towards the close of the Convention Randolph said: "We have, in some revolutions of this plan, made a bold stroke for Monarchy. We are now doing the same for an Aristocracy." Randolph was one of the few lawyers in the Convention who really understood the English Constitution. It is still the case that principles extinct in England live again in its colonies, and in the last century lawyers in America still got their notions of the English Constitution from old law-books. They did not perceive that the House of Lords had already parted with its absolute veto on the Commons, and indeed that superstition about the English Constitution survives. In the American Constitution monarchy was restored with new vigor in the guise of Presidency, and imperial State irresponsibility was established under the impression that it was British "sovereignty," though no such supremacy had existed in Great Britain since *Magna Charta*. The rule of the many by the few was here admitted without those restrictions which had been imposed on Crown and Peer in England by centuries of revolution and evolution. The English people are naturally aghast that we should submit to the imposition of taxes by a chamber in which our people

are not represented. The new tariff itself is of small moment compared with the political conditions illustrated in its enactment. These are of such significance, in connexion with the question of senatorial reform, that I call further attention to them.

A particularly notable number of *The Federalist* is 62. It was no doubt written by Hamilton (though by some ascribed to Madison). He expresses a hope that the senatorial system may work better than many contemplated. But (and to this I ask attention) the only check on the supremacy of small States is this: "*The larger States will always be able by their power over the supplies to defeat unreasonable exertions of this prerogative of the lesser States.*" Even in the act of advocating ratification of the Constitution Hamilton's candor admits that it introduces the principle of "PREROGATIVE," requiring a check similar to royal prerogative in England. When the second chamber was first constituted by the Convention, and while it remained as yet republican in basis, equal power of originating all bills was given it; but when it was made a peerage of States, the small States offered, as a concession, that the Senate should relinquish all power over the purse, in imitation of the British Constitution. This concession was receded from, but by the persistent efforts of Edmund Randolph it was recovered,—or supposed to be. The struggle was over the right to originate money bills; the second clause (Art. I. Sec. 7) "but the Senate may propose or concur with amendments, as on other bills" excited no suspicion. It passed *nem. con.*, which must have been impossible had it been supposed that the Senate would ever assert such power over the national purse as that with which we are unhappily familiar. The sentence in *The Federalist*, No. 62, is an authentic witness that Hamilton understood the exclusive power of the Representatives over supplies to be genuine, and intended to balance senatorial prerogative.

During the recent combat on the tariff, the New York *Evening Post*, whose legal opinions justly carry weight, contained the following editorial paragraph:

"Our constitutional provision on the control of the House over money-bills was confusedly drawn from English practice, and what that practice is was pretty

conclusively shown the other day in the action in the House of Lords on the budget. Some of its features were extremely distasteful to the Tory peers, and Lord Salisbury made an elaborate argument to show that the House of Lords had a constitutional right to amend a revenue bill. Lord Rosebery replied briefly and rather contemptuously that the only thing the House of Lords had to do with a money-bill was to take it as it came from the House of Commons, and this the noble lords proceeded to do meekly enough, despite all their wry faces. That essentially this absolute control of the power of the purse was intended to be given the House by the framers of the Constitution is beyond question. They never could have contemplated the possibility of the Senate's making what is practically a new bill under cover of the right to 'propose or concur with amendments.' "

In moving the question in the Convention Randolph said :

"First, that he had not wished for this privilege, whilst a proportional representation in the Senate was in contemplation ; but since an equality had been fixed in that House, the large States would require this compensation at least. Secondly, that it would make the plan more acceptable to the people, because they will consider the Senate as the more aristocratic body, and will expect that the usual guards against its influence will be provided, according to the example of Great Britain. Thirdly, the privilege will give some advantage to the House of Representatives, if it extends to the originating only ; but still more if it restrains the Senate from amending." (*Madison Papers*, III, p. 1297.)

But why did the Convention allow the Senate to amend money bills at all? It was on an admonition of Justice Wilson, a champion of just representation :

"The House of Representatives will insert other things in money bills, and by making them the conditions of each other destroy the deliberate liberty of the Senate. He (Wilson) stated the case of a preamble to a money bill sent up by the House of Commons, in the reign of Queen Anne, to the House of Lords, in which the conduct of the misplaced Ministry, who were to be impeached before the Lords, was condemned ; the Commons thus extorting a premature judgment without any hearing of the parties to be tried ; and the House of Lords being thus reduced to the poor and disgraceful expedient of opposing, to the authority of the law, a protest on their Journals against its being drawn into precedent."

With this reason for the Senate's right to propose amendments objections to it were met in ratifying Conventions. This is what the people voted for and adopted, and it is what never could have been unanimously offered them had it been imagined by the framers that the power of the Senate would ever be used on the purse itself, or for any other purpose than to restrain the representatives from

escaping the senatorial check on measures not pecuniary, by making them "riders" to money bills. The Senate has therefore long been exercising an unconstitutional authority in amending money bills pure and simple, and we are at this moment under a system of taxation really originated by the Senate.

Before me is a manuscript of Edmund Randolph, our first Attorney-General, in which he says concerning the Constitution, "Many powers were vaguely granted without regard to accuracy in their nature, and uncircumscribed in their extent. Whether this indefinite feature was the effect of accident or design has been and still is a subject of controversy." Justice Wilson, while persuading Pennsylvania to ratify, admitted that "in this system the distinction and independence of power is not adhered to with entire theoretical precision;" and he alluded especially to a degree of inaccuracy in defining the powers of the Senate. Now it is notable in our constitutional history that wherever there has been any such vagueness, the Senate has steadily appropriated the power involved. This process began at an early date, in the contest concerning the British Treaty, in 1795. The treaty was ratified by the Senate, though its opponents in that body represented a large majority of the people, and was signed by the President against the advice of his most eminent friends—Jefferson, Randolph, Madison, Hamilton, and others. The ratification of this treaty, virtually violating our treaty with France, by whose alliance independence was won, was felt by the people's representatives as an outrage, especially as at that moment English cruisers were seizing provisions on American ships. The House of Representatives, now required to make appropriations for carrying the treaty into effect, considered that the occasion had arrived for using, in the language of *The Federalist*, No. 62, "their power over the supplies to defeat unreasonable exertions of this prerogative of the lesser States." After long debate the House sent to the President a respectful request, moved by Mr. Livingston, for such papers concerning the treaty as it might not be injurious to pending negotiations to disclose, the resolution passing by 62 to 37. The President refused, in a message of which Madison wrote to Jefferson, April 4, 1796, "The absolute refusal was as unexpected as the

tone and tenor of the message are improper and indelicate." The President says, "It is perfectly clear to my understanding that the assent of the House of Representatives is not necessary to the validity of a treaty;" but its assent was necessary to supply money for carrying it into effect.<sup>1</sup> The message was felt as the menace of a *coup d'état*, and the intimidated House surrendered. Such was the end of the first effort of the people's representatives to check a senatorial "prerogative" by their control over the "supplies."

The point so clear to the President, who was no lawyer, is one of extreme intricacy. During the discussion Chief Justice Ellsworth wrote an opinion that the papers could not be constitutionally demanded by the House, but that small-State enthusiast of the Convention holds a very small place in the annals of jurisprudence beside such men as Justice Wilson, Edmund Randolph (our first Attorney General), Jefferson, and Madison. Wilson said, in advocating a ratification of the Constitution by Pennsylvania:

"It well deserves to be remarked, that though the House of Representatives possess no active part in making treaties, yet their legislative authority will be found to have strong restraining influence upon both President and Senate. In England, if the King and his Ministers find themselves, during their negotiations, to be embarrassed, because an existing law is not repealed, or a new law is not enacted, they give notice to the legislature of their situation, and inform them that it will be necessary, before the treaty can operate, that some law be repealed, or some be made. And will not the same thing take place here?"

Jefferson wrote to Senator Giles, December 31, 1795:

"Randolph seems to have hit upon the true theory of our Constitution, that when a treaty is made involving matters confided by the Constitution to the three branches of the Government conjointly, the Representatives are as free as the President and the Senate were to consider whether the national interest requires their giving the form and force to the articles over which they have a power."

The House of Representatives having then allowed itself to be

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<sup>1</sup> The only ground on which the House of Representatives had been denied by the Convention equal right over treaties was that such negotiations might require a secrecy inconsistent with their discussion in so large a body. (*Madison Papers*, iii, p. 1518.) There was no suggestion by any speaker that the Representatives might be bound to make appropriations for treaties, otherwise the clause, which had but one opposing vote (Pennsylvania), could never have passed.

browbeaten, it still remains undetermined whether a chamber not chosen by the people in conjunction with a President (often elected by a minority,—as Hayes, Harrison, and others have been) may not by treaty alienate the most important rights of the nation.

I am no worshipper of majorities. Wisdom is generally in the minority, but it is a minority of superior thought, intelligence, and character, which has fair chance to become a majority on any question proposed. Had our century of national experience shown that the representatives of Statehood were normally superior to the representatives of the people, or that our system, however wrong theoretically, worked well for the true welfare of the nation, my criticisms might be fairly regarded as merely academic. But the reverse appears to me the fact. That the prestige of the Senate has attracted to it more men of talent than reach the House may be admitted, but it has also attracted more self-seekers and mere plutocrats, who purchase places therein for which they are not fit. Moreover, talent, if devoted to reactionary aims, or personal ambition, is a worse enemy than stupidity. Fifty years ago, when the Senate was at its height of talent, its ablest men were cleverly defeating every effort of the nation's Representatives to restrain Slavery. We old abolitionists have long memories. I have heard the eloquence of Clay and Webster in the Senate, and was there when those famous orators, and their committee, in order to open to Slavery territories of which Mexico had been robbed, suggested the bribe which corrupted the first "Free Soil" House of Representatives. I do not suppose that more talent was ever displayed by a public body than in that infamy.<sup>1</sup> From the action of the Senate in 1850 came the struggles

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<sup>1</sup> The Senate's proposal to organise all the territories "acquired" (robbed) from Mexico, except California, without restriction on the extension of Slavery into them, contained a cunning clause granting Texas money. The bait caught the House. After voting against the proposal by a majority of eight, it reconsidered, and passed it by a majority, with a "rider," paying Texas ten millions of stock redeemable in fourteen years, bearing five per cent. interest, payable half-yearly at the National Treasury. The public debt of Texas, largely held by members of Congress, suddenly rose from between twenty and thirty per cent. to par. "Corruption," says Greeley, "thinly disguised, haunted the purlieus and stalked through the halls of the Capitol; and numbers, hitherto in needy circumstances, suddenly found themselves rich." (*The American Conflict*, Vol. I, p. 208.)



in Kansas and ultimately the great civil war. During the entire anti-slavery struggle the Senate, instead of being that proverbial "saucer" in which legislation is cooled, was the arena of "fire-eaters," a place for the exchange of affronts, where debate proceeded under continual threats—not unlike those in the Convention which established the Senate—of breaking up the Union unless certain States had their sovereign privilege of extending Slavery throughout the national territory. If any one wishes to know whether the Senate has improved since then, let him read the terrible arraignments of that body by Professor von Holst in *The Forum* of November, 1893, and his oration printed in *The Monist* of October, 1894.

I have felt it necessary to tell something of the humiliating history of the origin and career of the Senate because it is only by such light that wise reform can be begun. There has been something like a patriotic conspiracy among historians to suppress the facts, which are buried in records long out of print. Here is ex-senator Edmunds writing in a recent *Forum* about the Founders:

"They believed that the liberty and happiness of the people of the several States—States which they foresaw would finally embrace a continent in their benign sway—could only be preserved by such divisions and subdivisions, the sources and methods and exercise of political power as they adopted and provided for. A century of experience has demonstrated the wisdom of their marvellous plan."

The Founders' own words, cited above, proved that they believed nothing of the kind; that a large majority of them, and all of their really great men, accepted the plan against their judgment, with infinite disgust, under treasonable menaces of unpatriotic men; that they foresaw many of the evils which a "century of experience" has illustrated, confronting us this day with the fact that we are under the tyranny of a Prerogative less responsible and more liable to corruption than that which our Revolution overthrew.

I weigh again the words, and let them stand. In a letter to Lord North (February 5, 1778) George the Third wrote: "Lord George Germaine said to me this day that the Declaratory Act, though but waste paper, was what galled them [the Americans] most." This was true. Of that Declaratory Act (February, 1766) Thomas Paine wrote: "One of the greatest degrees of sentimental



union which America ever knew, was in denying the right of the British Parliament 'to bind the colonies in all cases whatsoever.' Taxation was nothing more than putting the declared right in practice." Parliament was an elective body, but America was not represented in it. Nor are the people of the United States represented in the Senate, which is able "to bind them in all cases whatsoever," and has just bound them with a system of taxation against which their Representatives and their President protested. But it was not the case in the British Parliament that its measures concerning America could be controlled by the ability of two or three easily bribed men to overrule both Crown and Parliament, by an obstructive power derived from the superstitious awe of the "prerogative" of those anointed by State sovereignty. The fact that colonies fresh from a seven years' revolution against vassalage could subject this nation to an assembly irresponsible to it, and not even able to carry into effect its own will against a clique—a little Senate, *imperium in imperio*—reminds us once more that real reforms are not secured by revolutions. Were the Senate uprooted to-morrow something almost as bad might possibly be planted next day.

And all sudden and sweeping changes partake of the nature of revolution. Thorough, permanent, and beneficent reforms must come by intelligent and purposed evolution. Natural selection breeds wolf and lamb impartially; human selection alone assures survival of the humanly fittest. Where a nation is largely enlightened, and its leading minds deeply occupied with national affairs, freedom and progress may be developed even by means of unpromising governmental anachronisms. Out of the irrational hereditary principle of the English Crown, carrying it sometimes to infancy and incompetency, Ministerial Government, at first a necessity, was developed into the only real Crown. The Lords, reduced to feebleness by the advance of democracy, have been turned to a really democratic purpose by English good sense, their House being practically the means of securing to the people their right to determine the measures by which they shall be governed. A party in the House of Commons lately passed a revolutionary measure by a majority hardly equal to the number of Ministers (who vote under

dictation),—a measure that was studiously kept secret before the elections. The Lords returned the measure, with a demand that it should be submitted to the people. It being probable that the people would defeat it, the measure has been necessarily relinquished. The anger of the defeated has been seized on by a parliamentary faction to revive the old siege against the House of Lords, but with no prospect of success. Formerly the existence of that House was assailed by radicalism with the hope of replacing it with a Senate, but since then our State Peerage has become a by-word to the world. Europe has just seen simultaneously the Great Exposition of our Civilisation at Chicago, and the Great Exposure of our Constitution at Washington. England will have no such thing. But sagacious men like Lord Rosebery perceive in the outcry an opportunity for developing the House of Lords another stage. By taking from it a fictitious veto, one it never ventures to exercise against a measure passed on by the people, its real suspensive veto may be definitely adapted to the new national needs and the conditions of party government.<sup>1</sup> England will then have a House independent of party interests and passions, not controlled by the *aura popularis*,—not subject to the transient fads, isms, and agitations which candidates must conciliate,—able to check either party in power by compelling it to consult the nation on important issues, and able to obtain from the people their maturer judgment. It is probable that the House of Lords, theoretically absurd, will come out of the present agitation the most useful second chamber in the world.

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<sup>1</sup> A good many Americans seem to suppose that the repeated rejection by the Lords of the bill for "marriage with a deceased wife's sister" represents their claim to an absolute veto. Such is not the fact. Whenever the Commons have received back that bill from the Lords, they (the Commons) have accepted the decision without sending that particular bill again to the Lords. Had the Commons really cared for the bill at any session, and insisted on it, the Lords must certainly either have passed it or demanded a popular vote on the measure. The exceptional action of Parliament on this reasonable Bill is explicable by the fact that the Commons do not really like it, that it has never made part of any party's programme at the polls, and would probably be defeated by the people. It is desired by but few, and mainly royal personages. Its rejection in different sessions, the Commons not insisting on it, does not affect the fact that the House of Lords has not within this century practically asserted a right of absolute veto.

But whatever may be the fate of the House of Lords, it appears to me certain that, in the direction of its proposed reform, our Senate is to be altered as the first step. To deprive it of its power of absolute veto could not practically affect the internal interests of any State unfavorably. It would at once render the Senate less liable to perversion by the large interests which can now purchase the balance of power in so small a body. Votes that can merely suspend a measure are hardly marketable. And although it may be hoped that other organic changes will follow, (not, I trust, election of Senators by the people instead of Legislatures, which would but give a sham popular sanction to a fundamental wrong,) even if the Senators continue to be chosen as now, deprivation of their power to defeat measures permanently by brute force would probably draw to their assembly better men. When there is a chamber at Washington whose only weapons are argument, reason, knowledge, eloquence, we shall perhaps no longer suffer by the unwillingness of our thinkers and scholars to take part in those miserable combats for which their finest qualities constitute their unfitness, and in which their very virtues insure defeat.

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## THE NATURAL STORAGE OF ENERGY.

THE content of the universe is called matter. Whatever has existence (*Dasein*) is material. Where matter is not there is nothing. It is the thing-in-itself. Its ultimate nature is not known, perhaps cannot be known, since knowing is an attribute of its most complex state. Its proximate nature, however, can be known, and the proper object of philosophy is to penetrate as far as possible into the nature of matter, i. e., to explain the universe.

The simplest hypothesis would seem to be that *the content of the universe consists of an infinite number of infinitesimal elements possessing fixed velocities*. The last part of this formula is not hypothetical, but is the essential truth of the established law of the conservation of energy. Moreover, it is not essential to the hypothesis either that the number of elements be infinite or that they be infinitesimal. The assumption is therefore reduced to that of the existence of such elements, which is the assumption upon which all science proceeds.

Space, time, and motion<sup>1</sup> are the three conditions (forms) under which matter exists, and all matter always exists under all three of these conditions. The existence of matter under the conditions of space, time, and motion constitutes its three fundamental *relations*, the extensive, protensive, and intensive. So far as human intelligence reveals the ultimate elements of matter they are perpetually impinging upon one another, which changes the *direction* of their motion without changing its *rate*; that is to say, the constant impacts

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<sup>1</sup> It seems strange that Kant did not include motion, along with time and space, as a "form" of all phenomena of the external senses.

of the material elements alters their motions without altering their velocities. This alteration of the motion of matter is the effect of which the impact or collision is the cause. This is causation in its simplest form, and all cause and effect are reducible to it. The idea of force is essentially the same. Force is therefore a compound relation growing out of the three simple relations.

We thus have two categories, matter and relation, the distinction between which is absolute. A relation is immaterial, but it can only subsist between material things. Think away the latter and nothing remains. It may seem superfluous to illustrate this, but the fundamental error of all philosophy has been that of confounding matter with its relations. If one element of matter occupies a different position in space from another there arise two relations of co-existence, distance and direction. No one would call these material. If an element of matter be moving, the time required to pass from one point in space to another compared with an antecedent or subsequent period of time is a relation of sequence, which no one would think of regarding as material. If two moving elements collide, the collision is not itself material. It is an intensive relation. The change of motion produced by the collision is a compound relation, and although it cannot occur apart from matter, it can be thought apart from it, not as matter but as relation.

To show how prevalent is the confusion of matter with relation one only need consider the current theories as to the nature of matter. Such expressions as "centres of force," "collections of properties," etc., unwittingly rob it of existence. Eliminate matter and a centre of force is a centre of relation with nothing to be related. Properties are the forces that matter exerts. Remove matter and there remains nothing to exert force or manifest properties. Dynamism is a form of magic.

The unalterable inherent motion of all the elements of the universe is the fundamental source of all effects, the primal cause of all things—it is the true *causa sui*, *causa immanens*, or self-activity of the philosophers. The multitudinous forms in nature are the products of the inherent motions of the elements of which they are composed, and show that the series of causes and effects which have re-

sulted in the existing state of things possesses a somewhat orderly character, involving a tendency toward the production of systems and symmetrical forms. Primarily there is seen the tendency to concentration due to a principle of attraction among the elements. This may be designated the *gravitant* force. There is, however, at the same time an opposite tendency to dissolution due to a principle of repulsion among the elements. This may be designated as the *radiant* force. These two primary forces interact, and wherever suitably balanced they result in the formation of symmetrical bodies preserved by equilibrating forces. It is this that constitutes true *evolution*, best exemplified in the celestial systems—cosmic evolution—and in organised beings—organic evolution. But looked at from another standpoint, the process may be regarded as one of *organisation*, which is *chemical* up to a certain point, beyond which it becomes *biotic*. In the former the activities are *molecular*, in the latter they are *molar*. The products of the former are *chemical substances*, those of the latter are *organic forms*.

The essential principle of organisation, whether chemical or biotic, is the concentration or focalisation of the otherwise diffuse and little operative activities of the universe in the direction of enabling them to produce increased and definite effects. Each product represents a different mode of storing up the universal energy, so as to expend it in some single, definite direction with an effect corresponding to the degree of concentration. The principle may be illustrated by the increased power of the sun's rays after passing through a lens, the intensity increasing as the area upon which they act diminishes, or by that of an electric coil as compared with the diffused electricity of the air. Every substance is a sort of battery, capable of making effective the otherwise ineffective forces of its elements.

The forces thus condensed and stored up constitute what are called the *properties* of substances, and these properties differ according to the elements of which the substances are composed, that is, according to their constitution. These properties differ quantitatively as well as qualitatively. There are many degrees in which the elements of substances may combine, the resultant combinations

becoming the units of higher degrees or orders of aggregation. The power of substances to produce effects is great in proportion to the degree of organisation.

Passing over the universally diffused and apparently homogeneous interstellar ether, which is the least concentrated form of matter about which anything is known, we seem to detect such degrees in what are called the chemical elements, as evidenced by their different atomic weights, and it is probable that the elements having smaller atoms combine to form those having larger ones. The properties of the latter class are thus rendered proportionally more effective, or, as it is said, more active.

The next stage is attained by the inorganic compounds, i. e., substances composed of chemical elements in various combinations. These differ from the elements of high atomic weights only in the fact that they are capable of artificial dissociation, by which their constitution can be determined. Being, however, of a higher degree of organisation their properties are proportionally more active. The inorganic compounds differ very widely from one another in their degrees of organisation, since this class includes not only those whose combining units are the different chemical elements, but also those which are made up of other inorganic compounds of lower degrees of organisation.

The third stage is that at which the so-called organic compounds appear. This, however, is probably only a convenient classification. It was formerly supposed that all organic compounds were the result of biotic conditions, the products left from the destruction of organised bodies, falling back to a plane intermediate between the purely chemical and the biotic. Such products there certainly are, but there are now known to be many organic compounds which are not so produced, and which can be artificially formed in the laboratory out of their inorganic constituents. The organic compounds also differ immensely in their degree of composition and correspondingly in the activity they display. Their properties differ greatly in their modes of manifestation, taking the form of astringents, narcotics, toxics, etc., in the vegetable alkaloids, and that of instability, changeability, and finally of isomerism in protein,



casein, hemoglobin, and other albuminoids. In each of these ascending stages the capacity for producing effects is enhanced.

Throughout all the stages thus far considered the only activities manifested are molecular. However large the molecules, those of albumen being equivalent to about five thousand hydrogen atoms, their power to act is confined to that which these exert within the systems which in each case characterise their chemical constitution. But this process of molecular recompounding is in the nature of things limited. The combining units become at length so large that they can no longer move among themselves without influencing the mass. This stage, that is, the stage at which molecular is transformed into molar activity, is reached with the appearance of the substance called *protoplasm*. This substance is probably a product of the recompounding of the albuminoids, which represent the highest degree of molecular activity. Protoplasm, therefore, which is the last or highest stage of chemical organisation, may also be regarded as the first or lowest stage of biotic organisation.

The leading property of protoplasm, as already intimated, is its power of spontaneous movement as a mass, which is simply a result of its internal constitution. The difference between spontaneous molecular and spontaneous molar activity is simply one of degree, and the latter phenomenon only surprises those who have not reflected on this fact.<sup>1</sup> It is admitted by all who have studied the constitution of matter that its elements are in a state of constant and perfectly spontaneous activity, but this is only perceptible to sense in the forms of heat, light, electric shock, weight, etc., in none of which is the actual movement among the particles within the range of the organs of sense. Therefore when this motion comes to be conveyed to the mass so as to be visible to the eye it is supposed that some entirely new principle is in operation. The illusion is dispelled by a very little thought devoted to the subject.

This spontaneous mobility manifested by protoplasm is tech-

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<sup>1</sup>This is the fundamental fallacy that runs through Dr. George M. Gould's exceedingly original and highly readable book, *The Meaning and Method of Life; a Search for Religion in Biology* (New York, G. P. Putnam's Sons, 1893), and neutralises the greater part of its contents.

nically called *motility*. It is the fundamental fact contained in the idea of *irritability*, as treated by Lamarck,<sup>1</sup> which, carefully analysed, is seen to consist in nothing else, that is, when kept wholly separate from sensibility, as Lamarck seeks to do. This, however, can only be done in thought. As a matter of fact irritability and sensibility always co-operate, are, indeed, but different aspects of the same fact. They constitute the initial stage of the relation which ultimately subsists between brain-states and states of consciousness, between neurosis and psychosis. The explanation of the origin of sensibility is that protoplasm is of such an unstable and delicate nature that to secure its permanence it must possess some protecting quality and sensibility is such a quality. It is probably the only one that would have served the purpose. To some it may seem that this makes it necessary to invoke design in order to endow it with such a property, but the leading principle of modern biology obviates this. It teaches that protoplasm could not have come into existence at all without this property. If there had been no such property there would have been no protoplasm, no life, no organic world. The same reasoning does away with the necessity of predicated sensibility of the simpler forms of matter, those whose activities are wholly molecular. These are so much more stable that no such quality as sensibility is required to preserve them. It need not, however, be dogmatically denied that ever diminishing degrees of sensibility may pass down into even the simplest forms of matter.

As already remarked, chemical organisation ceased and biotic organisation began with protoplasm. It is the only vital and psychic substance, the true life- and mind-stuff, and all further progress in focalising and utilising the universal energy has resulted from the organisation of protoplasm so as to multiply its power. This has consisted in a series of mechanical adjustments. In the organic world protoplasm is the power while *structure* is the gearing which concentrates that power. Although protoplasm exists in every cell, the main lines through which it works are the nerves, which, in the

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<sup>1</sup>*Philosophie Zoologique*, éd. Martins, Paris, 1873, Vol. I, pp. 8, 398; Vol. II. pp. 2, 37ff.

higher organisms, consist of large trunks with numerous local reservoirs and innumerable branches permeating all sensitive tissues.

In order that sensibility accomplish its purpose, the preservation of the organism, sensations must be either agreeable or disagreeable; hence pleasure and pain. The instability of protoplasm renders every part ephemeral. The entire organism is in a state of constant and rapid change of substance (metabolism), and fresh supplies must be momentarily introduced to prevent destruction by waste. The biological principle of advantage is adequate to secure this end. The supply of tissue is attended with pleasure and the actions necessary thereto follow naturally. The same is true of reproduction, which a study of the lowest organisms shows to be theoretically only a form of nutrition. The origin of pain is even simpler. The destruction of tissues results in pain and the actions necessary to prevent it also follow naturally.

Pleasures and pains once experienced are remembered, i. e., they are represented when not present, and there arises a disposition to repeat the former and to avoid a repetition of the latter. This is *desire*, and it becomes the prime motive to action. The organism necessarily acts in obedience to desire, or if there be several desires that interfere with one another it acts in the direction of their resultant. Hence the conative faculty or *will* so called.

Up to and including this stage the *cause* of all activity is generically the same. It is the efficient cause, the *vis a tergo*. *Motive* must be distinguished from *purpose*. Desire and will are simply motive. It is a natural force and does not differ except in degree of complication from any purely mechanical or physical force. But evolution has gone on to another stage. In much the same way as, by adopting a new method, it passed from chemical to biotic organisation, it has, by making another new departure, passed from genetic to telic causation.

The direction of progress was seen at the outset to be toward the greater concentration of cosmic energy, toward making the universal force, whose quantity cannot change, perform more work. This law continues in operation to the last. Telic causation is only another way of accomplishing this end. Just as biotic organisation

was called in where chemical organisation could go no farther, so teleology is resorted to at the point where genesis ceases to be effective. In the last stages before this point is reached the chief agent in nature is will, but, as already stated, its action is direct, the same as mere force in any other form. The new agent differs primarily from all others in being *indirect*. The essential characteristic of the final cause is indirection.

It is a common figure to represent any force as blind. The conative force is still more frequently so characterised. Desire sees no obstacles. Love is blind and blind impulse rules the lower world. But while results are accomplished by this direct method according to the intensity of the impulse and the strength of the organism, it is evident that there is a limit to the achievements of will. Desire must go unsatisfied if its object cannot be attained within this limit of physical strength. With the advance of biotic organisation desire increases more rapidly than does the power to overcome obstacles, and the number and magnitude of the obstacles to the attainment of desired ends thus rapidly increase. Any new advance must look to overcoming these difficulties and to clearing the way for the accomplishment of higher results. Still again the biological law of advantage comes forward. The new device is the *final cause*. It consists of a mechanism for the utilisation of force that is running to waste, and in this respect the economic principle of all evolutionary progress is employed, but the application of this principle is wholly unlike any hitherto made.

The conative power was seen to reside in an organised nervous system with an increasing integration of its parts in subordination to a general directive centre, the brain. The physical progress continued to all outward appearances unchanged except in degree in passing from the conative state which is genetic into the noetic state which is telic, but by insensible degrees a new psychic faculty was evolved. This new psychic faculty in its developed state is called the *intellect*, but it had its nascent and inchoate stages which, though the same in essence, scarcely deserve that name. The name, however, is unimportant. It is only needful to understand its nature.

Its physical nature may be safely said to be unknown. A the-

ory is that there takes place within the substance of the brain a miniature reproduction of the entire panorama displayed by the external world to the organs of special sense, which register all impressions and preserve them for future comparison and use. The mind itself thus actually *feels*, or, as it were, *sees*, not only all that is presented to the senses but all that has been so presented in the past, or so much of it as it has the power to retain. The simultaneous felt presence of so many impressions renders it possible to make comparisons and recognise differences and samenesses. It thus declares agreements and disagreements, which constitute the basis of all *thought*. Agreement of wholes is identity, agreement of parts is similarity. These are the fundamental relations, but there are many kinds of relations, and the intellectual process *per se* is the *perception of relations*.

How, then, does this simple faculty of perceiving relations become a new power in the world for the storage and use of the universal energy? What is the precise form of indirection that so greatly multiplies the effect produced? Is there anything essentially new in the nature of the force constituting a final cause? To the last of these questions a negative answer must be given. There is only one *genus* of cause in the sense of a force, and that is the direct impact. The difference between efficient and final causes must be sought in the mode of their application. While the final cause, as its name implies, is inspired by an end in view, it is in reality not directed toward that end. In mere motive or will, unaided by the intuitive faculty, the force of the organism is so directed, but for want of this faculty it may fail to attain it. The telic power differs essentially from the conative power in being directed not to the end but to some *means* to the end. Intelligence works exclusively through means, and only in so far as it does this does it employ the final cause. Instead of seeking the thing desired it seeks some other thing, unimportant in itself, whose attainment it *perceives* will secure the thing desired. This is the essence of intellectual action and all that constitutes a final cause. It is the process of converting means into ends. It thus becomes necessary that the means be *desired*; otherwise there is no *force* for the accomplishment of re-

sults. So far as the pursuit of the means is concerned the action is purely conative and does not differ from that which pursues the end directly. The whole difference consists in the *knowledge* that the end will follow upon the means. A final cause, therefore, stripped of its manifold concomitants which so obscure its true nature, consists in the pure intellectual perception that a certain end is attainable through a certain means. But this is simply saying that in and of itself it is not a cause at all. Knowledge is merely a *guide* to action. Intellect is a directive agent and can no more be called the cause of the result accomplished than the rudder can be called the cause of the progress of a boat.

There are all degrees in the amount of indirection involved in teleological action, from a mere *détour* necessary to avoid an obstacle to the highest feats of engineering, in which each separate part, say, of a Ferris wheel, must be wrought and put together to make the perfect structure which exists in the mind before the first step is taken. In this latter illustration every effort put forth from the beginning to the end is a direct conative act applied to a means. But the work as a whole is telic, the end being constantly in view. And such is the nature of the entire course of material progress achieved by man. It is by this that he is primarily distinguished from the rest of nature. The human intellect is the great source of telic activity. The works of man are the only ones with which we are acquainted that proceed in any considerable degree from final causes. But if there be any other source of final causes, the process must always be the same—efficient causes applied to means.

It was observed at the outset that in the case of genetic phenomena, i. e., of efficient causes, the effect, if the impinging bodies are inert, is always exactly equal to the cause. This is also true of final causes, so far as their action upon the means is concerned, but the *final* effect, if it can be so called, is usually much greater than the cause or effort expended. Wherein consists this difference? How has the force exerted acquired this increased efficiency? The answer is easy. The final cause is the mind's knowledge of the relations that subsist between the means and the end. But the chief



of these relations, and the only practical one, is the action of other natural forces outside of the agent's will-power or muscular strength. What the mind sees is that such forces exist and are operating in certain directions. What the intelligent agent does is to place the thing he desires but lacks the power to move into the current of such a force which moves it for him. This is the type of teleological action. It is illustrated in its simplest form by the lumberman who puts his logs into the river and lets the current float them to their destination. But the most complicated cases may, by proper analysis, be reduced to this simple principle. Teleology is essentially the utilisation of natural forces, causing them to do what the agent perceives to be useful and wills to be done. The applications of wind, water, steam, and electricity are this and nothing else. All machinery falls into the same class. Civilisation in all its material aspects is but the expression of this truth.

It thus appears that the course of evolution as above sketched has been in the direction from the unorganised and ineffacious toward the organised and efficacious through the process of storing energy in appropriate forms. This has taken place by a series of successive steps, each resulting in a more efficient product, that is, one possessing, in addition to the properties of antecedent products, some new property with a special power of its own capable of better work. The new property may be called its *differentia*, or differential attribute. The thought is embodied in the well-known phrase of Linnæus: *lapides crescunt, vegetabilia crescunt et vivunt, animalia crescunt, vivunt, et sentiunt*; to which might be added: *homines crescunt, vivunt, sentiunt, et cogitant*.

It is possible to arrange these several products of evolution in their ascending order of development, assigning to each the particular property by which it is distinguished from all below it—its *differentia*. There are also certain other special attributes that require to be taken into consideration. These are of three kinds: the nature of their *activities*, the *phenomena* they manifest, and the *cause* through which they work. For example, all activities are either molecular or molar, all phenomena are either physical, vital, or psychic, and all causes are either efficient, conative, or final. The



products themselves have already been enumerated in the order in which they must stand. The universal ether may be placed at the bottom of the scale as representing the most diffuse form of matter with the least power, when not concentrated, of producing effects. Next come the chemical elements, which form a class, although they might themselves be arranged in an ascending series. The inorganic compounds naturally follow the elements, and the same remark applies to them. The organic compounds differ from the inorganic still less than the latter differ from the elements, but they belong above them, and like them, only to a still greater degree, exhibit gradations in efficiency. Protoplasm is their highest expression and spans the chasm between the chemical and the biotic planes of existence. It makes the plant possible and prepares the way for the animal. At the head of the animal series and of the entire system stands man.

The classification thus sketched may be put in the following tabular form :

PRODUCTS	DIFFERENTIAL ATTRIBUTES			
	PROPERTIES	ACTIVITIES	PHENOMENA	CAUSES
Man.....	Intellect	Molar	Psychic	Final
Animals .....	Feeling		Vital	Conative
Plants .....	Life			
Protoplasm .....		Molecular	Physical	Efficient
Organic Compounds ..				
Inorganic Compounds.				
Chemical Elements ...				
Universal Ether .....	Wave Motion			

To the general proposition that properties increase in activity as the constitution of the substances manifesting them increase in complexity, it has been objected that there are certain very complex substances which are at the same time rather inert, as for example, clay; while there are certain simple chemical elements, such as oxygen, that have very active properties.

The first of these objections is simply a misconception of what is meant by complexity. The mere stirring together of heterogeneous materials without natural affinities is not complexity, but confusion. The only complexity contemplated is organised complexity. The substance, to manifest active properties, must be a system so integrated as to put forth the combined energy of all its constituents. This, all true chemical substances are believed to do, which is the reason for the law. But it is not the case with clay and most rocks and "minerals," or of any mere mixtures, whether natural or artificial. Unless a substance has formed itself through its own attractions and natural adaptations it does not come within the class of complex substances under consideration.

The second objection, viz., that those properties are most active whose effects are most manifest or obtrusive, is due to the same qualities of mind which look upon gaudy colors as superior to subdued ones, or a noisy person as more important than a quiet one. Oxygen, it is true, has powerful affinities for a great many other substances and has literally reduced nearly the whole earth to ashes by a process of *eremacausis*, but it is the sword of Attila, and not the spirit of progress. The fitful spell of activity is quickly followed by the embrace of death. Neither is the idea of activity to be gauged by the power to destroy living tissues or to produce effects upon sense in any form. If this were all, the most complex of chemical substances would be the least active. It is the power of doing work that increases with organisation. The power of the albuminoids takes the forms of instability, isomerism, and general adaptability to use in forming tissue and contributing to organic life. Protoplasm itself has no destructive power. Its activities are wholly constructive, and hence infinitely higher than those of oxygen, or even of the most virulent poison. It is life and not death that costs. A bull in a china shop may annul in a moment the result of years of skilled labor. The destructive work of nature is universal, its constructive work is local and limited. The power to create is pitted against the power to destroy. Life is an effort directed against the universal tendency toward death. Expressed in cosmical terms it is the struggle of the radiant forces with the gravitant forces, and is

the result of the interaction of these two forces, neither of which acting alone can produce it. The active agents in this warfare are the several combinations that I have enumerated—the storage batteries of nature. Ethereal vibration, chemical affinity, motility, vitality, sensibility, will, intellect—these are the ascending steps in the cosmical series, and at each step the operative power of nature is increased.<sup>1</sup>

A great deal has been said, and is still being said in certain circles, about a counter-force to gravitation, which is conceived as something quite different from the radiant energy as explained above. It is claimed that mind is such a force and is capable under suitable conditions of causing ponderable bodies to rise into the air against the force of gravity. To this alleged force has been given the name of *levitation*. It seems very strange, if such a force exists, that it cannot be demonstrated by the strict laws of physical experimentation in such a manner as to render its acceptance universal, as much so as the fact of magnetism, which, I am bound to say, had it not been apodictically proved, would be equally improbable *a priori*. Be this as it may, I merely wish to say that if such a force actually exists it possesses nothing antagonistic to the principles here laid down. We know that an organised living body is a reservoir of force. That of man, it is true, so far as its direct physical manifestation is concerned, is, even relatively to his size, comparatively small. His power, as has been shown, is chiefly indirect or teleological. But so far as most persons have had an opportunity to observe it, this force is only manifested through the organised system by means of a nervous apparatus directly attached to muscles, tendons, bones, joints, and limbs, which, in an equally direct mechanical way, seize upon material objects that are present and in immediate contact. This must be done to the means even in the most effective applications of the final cause. The simple question is whether there is another way, similar to that of a magnet, by which the stored-up energy of an organised system can act, ap-

<sup>1</sup>These views may be regarded as a slight amplification of those expressed in an article on "Cosmic and Organic Evolution" in the *Popular Science Monthly* for October, 1877 (Vol. XI, pp. 672-682).

parently at a distance, but really through the ethereal content of space, and thus counteract the force of gravitation, which likewise acts through the ethereal content of space. There is nothing antecedently impossible, or even improbable in this, only it requires to be demonstrated to the satisfaction of all and put in the way of verification at will.

There can be no such thing as action at a distance. The magnet or the electric discharge does not act through absolutely void space. This is unthinkable. There probably is no such thing as space that is not occupied by some form of matter in some such sense as the atmosphere or any gas occupies space; not an absolute *plenum*, for this would negative motion, but a partial *plenum* with ample room for the action of particles. It is through space thus occupied that the gravitant and radiant forces must act, and if there is a levitant force it must act through the same medium. The savage thinks the wind immaterial—spirit—as did the founders of language the world over. We have got beyond that stage of culture, but most men are still savages enough to believe that a stone falls to the ground through some immaterial or spiritual power. Another forward step in cosmical conceptions must be taken and it must be realised that there are ethereal as well as aerial storms, disturbances, and activities, and that no phenomenon can take place except by the impact or collision of moving matter, which is the essence of all force or energy, and the only *cause* in the universe.

Laplace has somewhere said that the discoveries of science throw final causes farther back. It would be more correct to say that such discoveries push final causes farther forward. They certainly tend to indicate that man's work alone displays design, and that all conceptions of teleological action outside of man's work are anthropomorphic. The inherent activity of all the elements that make up the content of the universe did not rise above the molecular plane until protoplasm was reached, and up to that point all phenomena were merely physical. While sensibility may be theoretically predicated of protoplasm and may be said to accompany all vital phenomena, it is only at its lowest stage throughout the vegetable world, and nothing that deserves the name of psychic is

found below the animal stage of development. Psychic phenomena are subjective and non-selfconscious throughout the subhuman realm of life, and only the incipient stages of intellectual perception are reached by the highest animals. None but efficient causes are operative until man appears and in his less developed condition, as also in the purely animal state, the power exerted is purely conative—the struggle of the unguided will. Not until the full-orbed reason comes upon the scene does the telic force at last gain sway and begin its triumphant career.

In a very general sense it may be held that cause and effect are always equal, but from the standpoint of the present discussion all progress is due to the increasing difference between effect and cause. This results from the successive differential attributes which are superadded at each evolutionary step. These modify the susceptibility of the products, causing them to react more and more vigorously at each step. The law of the equality of cause and effect ignores these increments of stored energy and assumes absolute inertness in the impinging bodies. But when these increments of energy are taken into account, the effect of impacts loses its simplicity and becomes at length incalculably complex, being in fact the resultant of all the properties involved. To the power from without is added the power from within. There are actions, reactions, and interactions, until in the higher stages of biotic organisation, and especially in the domain of final causes, the disproportion between effect and cause becomes enormous, as, for example, in the case of the lever and fulcrum. This often puts it beyond all power to calculate results. In the domain of purely mechanical causation that controls the heavenly bodies, it is possible to predict remote future events. The astronomer can, as it were, write the biography of the solar system in advance, as is done in computing the nautical almanac so many years ahead of date, but who could write the biography of a new-born infant? Great indeed is man's power of prevision under science. The motions of the planets can be foreknown for an indefinite future, physical and chemical effects are accurately deduced from the known laws of these sciences, the rate of growth and multiplication of plants and animals can be approximately ar-

rived at, the psychic activities of animals can be counted upon with sufficient definiteness to be of great value to man, even the feelings, emotions, and propensities of human beings, with their resulting actions, can be rudely presaged, and the will itself reduced to very general laws; but when an attempt is made to bring the intellect under the dominion of law, to calculate the orbit of the reason, to determine the path of a thought, all rules of the calculus fail. It is here and not in the will that the nearest approach to freedom is to be found. In all other departments there is some limit to the causal influence, but in the department of the higher mind, where all other forces in nature are brought under subjection, the possibilities are practically unlimited. A brilliant French writer has said that human thought is the sum of all the forces of nature. This is true in the sense that it is the master of nature, although in any strict sense it is not only not a force, but it is not even a cause. The final cause is not itself a cause, it is the appropriation of all causes.

LESTER F. WARD.

WASHINGTON, D. C.

## CHRISTIAN MISSIONS.

### A TRIANGULAR DEBATE, BEFORE THE NINETEENTH CENTURY CLUB OF NEW YORK.

THE Right Reverend Mr. J. M. THOBURN, Missionary Bishop to India and Malaysia, said :<sup>1</sup>

Most of the opinions formed with regard to missions, as far as India is concerned, are very superficial, and you have to bear in mind that no person can form an intelligent opinion on them unless he has been there himself and seen the work more than once.

If you go to India, a country as large as all the United States east of the Rocky Mountains, and a country like Europe, made up of many different nationalities, speaking languages differing very much in character ; and some one who has happened to have as a servant a Christian convert, tells you that the missions are not worth much, that a convert is a great deal worse after baptism than he was before ; that it does not mean anything there to be a Christian convert, you must distinguish between the converts of the real missions of India and the lineal descendants of the people who were Chris-

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<sup>1</sup> Mr. Walter H. Page, President of the Nineteenth Century Club, writes of Bishop Thoburn : " Remarkable success has crowned the mission work in his charge. He has organised many churches even as far away as Rangoon and Singapore. During the last few years converts have been received into his churches at the rate of about fifteen hundred a month, or fifty for every day of the year. The work of providing for this large number of converts, furnishing the necessary teachers and building up the churches, is sufficient to tax all his energies. He has written several books, notable among which are *My Missionary Apprenticeship* and *India and Malaysia*." As Bishop Thoburn sailed for India on the next day after the debate he has been unable to read the proofs of his address, which has been condensed from a stenographic report.



tianised by force about two and a half centuries ago. There are in India over two hundred thousand of such Christians, but we never reckon them as converts. The French and Dutch, and especially the Portuguese compelled people to become Christians, but that is not missionary work at all.

When the English government first assumed power in India they refused to let missions be introduced, which, though eminently discreditable to their courage, was a fortunate thing, for if they had introduced missions themselves they would have been badly mis-managed. As the union of Church and State is fatal anywhere in Christendom, it is especially fatal in a heathen land ; and you would have had the extraordinary spectacle of Warren Hastings and Lord Clive trying to convert the people of India. They would have made them Christians indeed ! And then you would have had a great deal to say as to what Christianity does for the heathen.

The missionary enterprise which I have devoted myself to, a work which I always thought has not been sufficiently valued, and perhaps not correctly estimated, began about one hundred years ago. A shoemaker named William Carey was the first great leader of the movement, which required one generation to get it fairly under way, and consequently, when you come to look at the situation you will find that we only have about two generations of missionary labor upon which to pass an opinion.

Numerically we have not succeeded as well, I think, as the Christians of the first century did, I think, although there is a good deal of guess in it, Renan's estimate was that, at the close of the first century there were probably not more than two hundred or three hundred thousand people Christians in the world, and the best authorities of the present day put the number surprisingly low. We have between six and seven hundred thousand at the present day in India. It will be said that they are not visible to those that go there ; and they are often spoken of very contemptuously and by none more contemptuously than by cultivated, educated Indians themselves. You will be told that they are all low-caste, all ignorant, all very poor, that they have no influence, and never can have any influence. Please remember that, at the end of the first cen-

tury, there were only about half a dozen really able leaders of the Christian Church whose names have come down to us, and I am not sure but I have put the number rather high. At that time you could not have found five men of thought in the Roman Empire who could have told the name of the founder of Christianity. They did not know in Rome the difference between a Jew and a Christian, and the distinction was not known to most of the rulers of the Empire. We always imagine that the early Christians had been great men. There were among them not many; and the constant reproach of the day was that the great mass of the Christians were slaves.

Now, in the first place, the majority of our Christians in the missions I am superintending are composed of very poor people, and of low-caste people; and when that is brought forward as an objection, my reply is: That is accounted for by the fact that we are Christians. It is Christianity that we are planting there. If we had not the poor, and if we had not the outcasts, then you might intimate to me that I was not a Christian, and that we are not planting Christianity there, but Mohammedanism or some other cult. When the Founder of Christianity came, you will remember that he announced from the first that he came "with good tidings to the poor." You never saw a poor man. The poorest tramps that I meet on the street here, would be swells in India. We are receiving converts at the present time at the rate of about fifty every day. While you are sleeping to-night our missionaries in India will receive fifty converts to Christianity; and I suppose forty-nine of them will be so poor that the average income of each family would not amount to six or seven cents a day; and that is what it will be all through life.

The question will be asked: What can these poor people do? The question is, not what can they do, but what can *we* do?

In the first place, we are going to enrich them. The trouble with the extremely poor people is that poverty can be accounted for only in one way. It is owing to moral causes. We cannot find gold mines for the poor, but if we stamp the right kind of character into them they begin to rise.

It will be said : "You cannot make men out of those degraded people." Well, did you ever try? I have, and I say, do not despise them. I remember one time, it was in 1868, when I went out to a station to administer the Lord's Supper in a village. A great many of the converts were thieves, and the caste they belonged to consisted largely of professional thieves. Stealing is looked upon in this country as a base and gross sin, unless it is done in legal form ; but out there it is looked on otherwise ; and when I saw these poor people, the thought came to me : We can never build up Christianity here, when the foundation must rest on thieves and criminals. It did not occur to me at the time that when our Saviour died, there was a thief on his right hand and one on his left.

I have lived to lay my hands upon two of those men and ordain them as ministers of Christ. Forty-five hundred of them, who have become Christians, are so elevated that their neighbors have forgotten that they were ever anything else but Christians. One of them, who was the son of a sweeper,—Mr. Gandhi knows what that means ; there is no depth deeper than that,—I have seen that man coaching Burmese and Mahomedan young men and boys for university examinations. He is now the principal of a high school, and I have seen men educated by him taking responsible positions. Therefore, I know that these people *can* rise.

There are fifty millions of people in India who are what we call "low caste"; they are below the line of social respectability; they have no more chance than the colored people in South Carolina have in the white schools of the country. Although the law professes to admit all on equal terms, they cannot go to an ordinary school. In a remarkable article I was permitted to read, on the Common Schools of India, written by an Indian gentleman of education, he says : "Nothing can be done for these people, unless the missionaries do it," and he admits what they have been doing for them.

Those are the people among whom we work. Missionaries are opening out a doorway, and they are coming in. We have brought the cost down cheaper and cheaper, until now I will take ten boys or ten girls who are baptised, and I will put them in a boarding-

school, clothe them and feed them and educate them for the sum of ten dollars a year for each one. Is there anything cheaper in the world? And they will be better off than ever before.

Another word with regard to women. A woman's intellect has always been regarded as exactly the same as the intellect of an out-cast. The low-caste man is not supposed to have an intellect, neither are women supposed to have one; consequently they never have any opportunities. And I don't see how there can be any opportunities under the Hindu system. There would be a better chance for them if the Hindus were Buddhists, but we have no Buddhists in India now. Missionaries introduced the education of women in India, and have done it successfully.

It is my own deliberate opinion that, before the middle of the next century, the world generally will recognise the missionary movement as the greatest movement of the world.

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MR. VIRCHAND R. GANDHI<sup>1</sup> said :

When I say anything against Christian missions, please understand that I do not refer to Bishop Thoburn, whom I regard with great respect and friendly sympathy. There is nothing personal in my remarks at all.

Christian missions to India imply that India is a land of heathens, and, therefore, stands on the same level with the Andaman or the Fiji Islands. That a country which has been recognised in all ages the world over as the mother of all religions and the cradle of civilisation should be considered as pagan, shows how much ignorance prevails in Christendom.

Since the Parliament of Religions, I have been studying Christian institutions, and I have also studied the way in which the Christian ministers and the missionaries are manufactured in this country, and have learned to pity them. We must not blame them

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<sup>1</sup> Mr. Virchand R. Gandhi, a barrister of Bombay, came to the United States to attend the Parliament of Religions at the World's Fair in 1893, as a representative of Jainism, a faith older than Buddhism, similar to it in its ethics, but different from it in its psychology, and professed by several millions of India's most peaceful and law-abiding citizens.

too severely, because their education is too narrow to make them broad-minded. I grant that they are good-hearted, that they are good husbands and often fathers of large families, but generally they are very ignorant, especially of the history of civilisation and of the philosophy of religion of India. Most of them do not even know the history of ancient India.

We know that in this age of competition, centralisation, and monopoly, very many people are forced out of business. The English say, "The fool of the family goes into the Church"; so that when a youth is unable to make a living, he takes to missionary work, goes to India, and helps to introduce among the Hindus the doctrines of his church, which have long since been exploded by science.

When I arrived in this country, I first came to know from missionary sources that in India women threw their babies into the Ganges, and that the people of India threw themselves under the car of Juggernaut. No one ever invented a more barefaced falsehood or more malicious slander. Listen to the following hymn, which is quoted from *Songs for the Little Ones at Home*:

" See that heathen mother stand  
Where the sacred current flows;  
With her own maternal hand  
Mid the waves her babe she throws.  
  
Hark! I hear the piteous scream;  
Frightful monsters seize their prey,  
Or the dark and bloody stream  
Bears the struggling child away.  
  
Fainter now, and fainter still,  
Breaks the cry upon the ear;  
But the mother's heart is steel  
She unmoved that cry can hear.  
  
Send, O send the Bible there,  
Let its precepts reach the heart;  
She may then her children spare—  
Act the mother's tender part."

The song is illustrated by a picture which heightens the horrible effect, and there are several other songs written in the same

spirit.<sup>1</sup> Such heart-rending stories help to swell the collections. We read in the same hymn-book, on page 246:

"Both missions and schools want money, I know."

And another song starts with these words:

"Should you wish to be told the best use of a penny,  
I'll tell you a way that is better than any."

We all understand that the debasement of a nation's coinage is very pernicious and must prove disastrous to its commerce. How much more dangerous is the debasement of the spiritual coinage! All religions worthy of the name are now making great efforts to purify their doctrines and return to their original standpoint,—all except Christianity! You surely know that the nineteenth century Christianity is not the religion taught by Christ. Christ's religion has been changed and corrupted. But Christian clergymen are well aware that if they were to attempt to purify Christianity and bring it back to the religion of Christ, the result would be to reform it out of existence. Christianity stands to-day completely explained. Every step in its development is laid bare and shown to be due to purely natural causes, and it is easy to see how much Christianity adopted from other and older religions.

The central ideas of Christianity—an angry God and vicarious atonement—are contrary to every fact in nature, as also to the better aspirations of the human heart; they are, in our present stage of enlightenment, absurd, preposterous, and blasphemous propositions. Christians well know that the much-decorated statue of the Church, as it now stands, is not of pure chiseled marble, but of clay, cemented

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<sup>1</sup> In reply to Mr. Gandhi's statement on infanticide in India the Bishop said: "That verse from the hymn that was read about the mother who throws her child into the Ganges has a little history. When missionaries went over first, a hundred years ago, the mothers *did* throw their children into the *lower Ganges*; but never did throw them into the upper parts of the stream. I have frequently corrected that mistake, and told them that they no longer throw their children into the Ganges now. Unfortunately for Mr. Gandhi, there is an English law which prohibits throwing children into the Ganges. Would that law have been made if it had never been done?"

Mr. Gandhi maintains that it is only a missionary calumny to excite the sympathy of credulous Christians; he says that he has studied the whole criminal law of India but it does not in any place refer to the throwing of babies into the Ganges; because there *never was* such a custom at any time in the history of India.

together by blood and tears and hardened in the fires of hatred and persecution. And still we hear the cry, "The whole world for Christ."

What benefit have the Hindus derived from their contact with Christian nations? The idea generally prevalent in this country about the morality and truthfulness of the Hindus evidently has been very low. Such seeds of enmity and hatred have been sown by the missionaries that it would be an almost Herculean task to establish better relations between India and America, had it not been for the Parliament of Religions and the spread of liberal thought from its platform.

If we examine Greek, Chinese, Persian, or Arabian writings on the Hindus, before foreigners invaded India, we find an impartial description of their national character. Megasthenes, the famous Greek ambassador, praises them for their love of truth and justice, for the absence of slavery, and for the chastity of their women. Arrian, in the second century, Hiouen-thsang, the famous Buddhist pilgrim in the seventh century Marco Polo, in the thirteenth century, have written in highest terms of praise of Hindu morality. The literature and philosophy of Ancient India have excited the admiration of all scholars, except Christian missionaries. Max Müller has said :

"If I were asked under what sky the human mind has developed some of its choicest gifts, has most deeply pondered on the greatest problems of life, and has found solutions of some of them which well deserve the attention of those who have studied Plato and Kant—I should point to India."

The wonder is that notwithstanding these foreign attacks and the demoralising influences of foreigners, India and her people have survived : India still leads in spirituality and morality. Sir T. Monroe says :

"If a good system of agriculture, unrivaled manufacturing skill, a capacity to produce whatever can contribute to either convenience or luxury, schools established in every village for teaching reading, writing, and arithmetic, the general practice of hospitality and charity amongst each other, and above all, a treatment of the female sex full of confidence, respect, and delicacy, are among the signs which denote a civilised people—then the Hindus are not inferior to the nations of Europe, and if civilisation is to become an article of trade between England and India, I am convinced that England will gain by the import cargo."

Under the reign of the King of Oudh, there was not one liquor



shop in all Lucknow; now, under the rule of Christian Government, there are more than a hundred. In the year 1890-1891 the English Government derived 4,947,780 rupees from the liquor traffic—a revenue three or four times larger than that derived either from customs or assessed taxes, or forests, or registrations, or Post Office, and seven times as large as telegraphs, eight times as large as from law and justice. The income is increasing every year by five hundred thousand dollars. Fifteen years ago only ten per cent. of the people of India drank spirits, now over twenty per cent. To our rulers then, who represent to us political Christianity, money, howsoever obtained, is the highest Gospel, and certainly Christianity is responsible for all this because the first representatives of Christianity sanctioned the use of wine under the pretext of a religious ceremony. Drinking is, in fact, an inseparable feature of Christianity as understood by the low-class people who are perverted to Christianity. This is one of the vices which Christianity is forcing on us; and you will be startled when I tell you that even the missionaries have administered intoxicants to make conversion more easy and sure. Perversion always precedes conversion.

I make this statement not upon my own authority but on the authority of one of your own countrymen of high standing who has lived for years among missionaries in India and has been an eyewitness to such diabolical methods. And these men speak of the fatherhood of God and the brotherhood of man, the universal love and liberality of thought.

Even aside from these practices of the missionaries, the teachings propagated among the most ignorant of the low classes is at best a dogma of one or other particular sect.<sup>1</sup> Missionaries preach doctrines that they dare no longer teach in the public schools of this country. They expect us to permit our children to accept that

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<sup>1</sup> Bishop Thoburn said in reply to this passage: "I am not aware that I teach or that others teach those poor creatures dogmas. My friend was brought up in India, but he hasn't lived quite as many years in it as I have; and I have been among those people. They don't know anything about dogma. We do not receive them into our schools to make them Christians. They come into our schools because their parents are converts. Nobody else in this world will ever give them this education unless we do."

which you would not allow to be taught to your own children. We cannot see the consistency of such a method. The American people spend thousands of dollars to propagate the doctrines of the fall of man, the creation of the world out of nothing in six days by a personal God, vicarious atonement, absolution from sin by the shedding of innocent blood. This is the Christianity offered to the poor and illiterate of India.

Christianity does not come alone ; nor does it come directly from Jesus Christ ; it comes to us through its modern representatives, who have introduced many vices into India, unknown to the Hindus. It has percolated through the layers of dogmatism and bigotry, of intolerance and superstition, of damnation and hell fire. It takes on itself the quality of these layers and imparts them to those that are received within its folds.

We in India, from the lowest pariah to the highest potentate, look upon life here as a mere waiting room from the known to the unknown, as a mere stage of growth from the lowest animalcule to the highest and perfected state. We believe in the eternity of the soul, meaning thereby that it is eternal at both ends—at the beginning as well as at the end ; we preach and practice brotherhood—not only of man but of all living beings—not on Sundays only but on all the days of the week. We believe in the law of universal justice—that our present condition is the result of our past actions and that we are not subjected to the freaks of an irresponsible governor, who is prosecutor and judge at the same time ; we depend for our salvation on our own acts and deeds and not on the sacrificial death of an attorney. Our rites and ceremonies may appear to you as mere superstitions but modern science is just beginning to understand that they are based on scientific principles.

My missionary friends say they are educating the people of India. I ask them with what object. It is only a bait offered for the purpose of catching the Hindu fish in the Christian net. Bishop Thoburn in his work on India honestly admits that stratagem had to be resorted to in order to attract children to the secular and Sunday schools ; and he mentions how successful the missionaries were in establishing a dozen Sunday schools in Lucknow in 1877, omitting,

however, to mention that before that time there was not one drinking-saloon in that city, while now there are more than a hundred. Bishop Thoburn is doing his best to make converts, but every convert he makes is transmuted from an industrious worker into an idle loafer, who becomes a burden on the missionary funds.

My brothers and sisters of America, there is not the least shadow of hope that India can ever be Christianised. After two hundred years of vain efforts and of spending millions of dollars with the prestige of the conqueror and backed by British bayonets, Christianity is not supported by the converts themselves. Every bit of Protestant Christianity in India is maintained partly by the money flowing from England and America, and partly by taxes imposed upon the Hindus against their will, which must be paid although the people starve.

The people of India as a whole are saturated with religious and philosophical thought. They think and ponder on spiritual matters from childhood to death. Even the street-sweeper is frequently more profoundly versed in subtle metaphysics and divine wisdom than the missionary sent to convert him.

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DR. PAUL CARUS said :

This is a truly interesting conflict, in which two men of different creeds are pitted against one another : the disputants, Mr. Gandhi, the Jain and so-called pagan, and the Right Rev. Mr. Thoburn, a Christian bishop, are the exponents of two incompatible world-conceptions. Their controversy is no mere tournament, but genuine war, and to those who understand the situation it is more exciting than a duel ; for the battle is not between persons but between principles. Think only of the conflict back of it, which is more thrilling than a Mexican bull-fight, for there is more at stake than the worthless life of a bullying matadore. It is a struggle for life and death between two hostile religions ; and every religion implies a peculiar civilisation, with its own moral ideals and methods of education, including all the possibilities of a higher development in a definite direction. The religion of a man is the core of his being, for it is the ultimate determinant of his actions. Mr. Gandhi

and Bishop Thoburn fight, not for sport, not for honor, not even for their lives, but for their souls.

How untrue is that sentence which Schiller puts into the mouth of Wallenstein :

" Ideas live in happy peace together,  
While fiercely in space bodies collide." <sup>1</sup>

It is true enough that bodies do collide, but space is infinite, and there is room enough in it to accommodate all bodies in peaceful juxtaposition. Whenever a collision takes place, apparently other factors are active than material extension. Tables or chairs that stand in our way do not mind being pushed aside ; any other place will suit them just as well ; but ideas are not so obliging. No affirmation can remain at ease so long as its negation exists, and no infinity is large enough to harbor Yea and Nay at once. Thus we should rather say :

" Bodies may dwell in happy peace together,  
While fiercely ideas wage their wars."

Ideas are, after all, the decisive factors in the great battle of life, and ideas are harder than stone or steel. They appear as fleeting ghosts without reality, and are, in the opinion of the materialist, unsubstantial humbugs. But a close inspection shows that these wonderful quiddities are the essence of existence. Ideas are the God who, through a long and painful process of evolution, becomes flesh in man, and reveals himself in the human soul. They reach their clearest expression in exact science and are as exclusive and intolerant as the old Jehovah who suffers no gods beside him.

I come as an umpire into this conflict, for I side with neither party. I am a man of science without a creed, repudiating on the one hand the very possibility of any special and extra-natural reve-

<sup>1</sup> Wallenstein says (Act II, Scene 2):

" Leicht bei einander wohnen die Gedanken,  
Doch hart im Raume stossen sich die Sachen."

We need not add that Wallenstein, of course, is right when the word " ideas " means all possible and impossible fancies. The realm of imagination is infinite, and he can truly say :

" Eng ist die Welt und das Gehirn ist weit."  
[The world is narrow, and the brain is broad.]

lation, and on the other hand always ready to accept what can be proved to be true, either through experimental demonstration or on the ground of soundly reasoned argument. But while I have no creed, I have a religion. My religion is a trust in truth. I propose to make truth the essence of our souls, meaning by truth the same as the scientist,—“a correct representation of facts”; and truth, as experience teaches us, must be established by our own exertions, after a careful examination and with rigorous criticism: it must be established by science.

By science I do not mean merely the dry formulas of the scientist, but the truth which they contain, and religion is the best knowledge of truth attainable, applied to moral conduct. Nothing more holy than truth! Genuine religion is solidary with science, and a religion that scorns science is doomed. Science is the light on our path; science is God's revelation; and science alone, i. e., truth to be verified by science, is the saviour from whom we can expect help and comfort.

In entering the lists as a third party, I do not consider myself called upon to investigate the personal accusations and counter-accusations made to-night. They may be true or they may be false; I do not care. No doubt mistakes are made by missionaries, and the so-called pagans are probably a little less ideal than Mr. Gandhi would make us believe. Missionaries, and Jains also, are mortals, like ourselves, and who among us is free from error and sin? What I care for are not the details but the principle of missionarising. I ask:

“Is a religious propaganda right or not? Is it presumptuous to intrude our religion on other people, or is it a sacred duty to do so?”

My opinion is in brief this, that missionarising is the inevitable outcome of a serious conviction. Truth is like a burning torch. It must shine, and you cannot hide it under a bushel. That religion is dead whose adherents have no desire to propagate their faith. He who would find fault with the principle of missionarising must foster indifferentism, which is not impartiality, but lack of conviction.

We cannot agree with Schopenhauer when he calls missions

"the acme of obtrusiveness, arrogance, and impertinence," but we are pleased with his proposition that Buddhists and Brahmans should be allowed to send as many missionaries of their own to Christian countries as Christians send missionaries to theirs.<sup>1</sup> And we do not doubt that the execution of this plan would be mutually beneficial. Missionaries from what we call pagan countries would set us a-thinking. Their presence would be as suggestive and instructive as the World's Parliament of Religions. And if they did not convert us to their faith, they would most certainly help us to broaden our views and to attain a higher, a purer, and a truer conception of our own religion.

Competition may be inconvenient, but it is good, even in matters spiritual, for it promotes progress. Christians who denounce the Parliament of Religions prove only the littleness of their faith. There is something wrong in either the views or the policy of those who claim that their religion is too holy for comparison and criticism. It is the brass of glittering imitations only that haughtily denounces tests as improper, not the genuine gold of truth.

Many of Mr. Gandhi's propositions find a strong support among prominent men in Europe and America; missions to India and China are frequently spoken of as utter failures. Bishop Thoburn admits that "the Indian converts of the century now closing are regarded with a measure of contempt by many intelligent Indians and Europeans"; and Schopenhauer quotes a report that Brahmans, conscious of the superiority of their faith, have for the sermons of Christian missionaries only a smile of condescension or a shrug; and he adds:

"To pass over from the eternal Brahm which is present in all things, living in them, suffering in them, and seeking salvation in them, to the belief in a Maker out of nothing is too much for those people. They will never comprehend that the world and man have been fashioned out of naught."—*Par. II*, p. 240.

Bishop Thoburn has told us of his success among the outcasts, and we are deeply impressed with his kind-heartedness. According

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<sup>1</sup> See Schopenhauer *Par. II*, p. 351 and p. 240, cf. also *W. a. W. u. V. I*, p. 421.

to his own statements he is more a philanthropist than a missionary. But granting all his statements, what is the cause of the failure of Christianity among the better classes of civilised nations?

There may be many local causes to prevent the spread of Christianity among the educated, but one applies universally. It is natural that the higher and more advanced a religion is the less accessible are its adherents to those Christian dogmas which are incompatible with science. So long as these dogmas are regarded as the essential element of Christianity, Christian missionaries cannot succeed. When Christian missionaries preach Christ's message of charity and love without the superadded dogmas of ecclesiasticism, they will succeed better.

But there is still another point of view. The value of missions must not be measured from the narrow standpoint of dogmatism. We must not seek their ultimate purpose in converts, but in the enhancement of truth by a propaganda of what we trust to be the truth. Missionaries may preach errors, but if they are only honest they cannot help promoting the cause of truth. The inhabitants of Asia have much to learn from us, and we can benefit them by making them acquainted with our civilisation. But the most important blessing which rests upon missionary work lies in this, that the better knowledge of those whom we contemptuously call pagans broadens our own Christianity, and makes us better Christians than we were before. Our criticism of the paganism in other religions suggests to us the necessity of sweeping before our own doors. Here is an instance of what I mean.

Mr. Spence Hardy, a Christian missionary to Ceylon, is very severe on Buddhism. He says in his book *The Theories and Legends of Buddhists*, dedicated to his converts :

"What Buddha says about his past births and those of others is an imposition upon mankind."

Spence Hardy argues, If Buddha had lived in those ages of a remote past, he should have mentioned the existence of antediluvian creatures, and he goes so far as to speak of Buddha as "an impostor." Buddhist patriarchs are censured for representing the



earth as flat. Speaking of the miracles attributed to Buddha he says :

"I deny all that is said about the passing through the air of Buddha and his disciples, or of their being able to visit the Dewa and Brahma worlds."—P. 137.

"These things are too absurd to require serious refutation."—P. 140.

Granting that a belief in miracles is absurd, we ask, why does Mr. Hardy employ two measures? Jesus says: "With the same measure that ye mete withal it shall be measured to you again."

Mr. Spence Hardy forgets that Christ is in the same predicament with Buddha. Christ claims to have existed before Abraham, yet mentions neither the pterodactyl nor the mammoth. If Buddha's walking on the water is incredible, why is the same story of Christ to be accepted submissively and in blind faith? Buddha's ascent into the Brahma world is ridiculed, but when we read in the Gospel that Christ was carried up into heaven, we must believe, in spite of Copernicus; and as to the belief in the flatness of the earth, Mr. Spence Hardy had better kept his peace, for his converts are likely to hear, sooner or later, the story of Gallileo. There is scarcely any accusation in Spence Hardy's book which is not applicable to Christianity except one, that Buddha is arraigned, strange to say, for his "apparent candor and catholicity" which enable him to see much truth also in the views of his adversaries.

There is a class of Christians who use the acid of scientific critique for the decomposition of the errors of other people, and keep nothing for home consumption—where it is not less needed in the interest of developing that higher religion which would be free from superstitions and a blind submission to the letter.

If Christianity has any rival religion in the world it is Buddhism, the younger but more powerful sister of Jainism—the religion of our friend Gandhi. Exactly on those points concerning which the dogmatism of our churches comes into conflict with science, Buddhism agrees most closely with the theories of modern investigations now generally accepted by the scientific men of Christian countries. Buddhism recognises the rigidity of the law of causation in the moral world not less than in the physical world; it rejects the idea of a creation of the world out of nothing; it repudiates the an-

thropomorphism of the belief in an individual God, and in conformity with the doctrine of evolution, anticipates in all essential details the results of modern psychology as expounded by Ribot, Hering, Wundt, and other European and American scholars. Granted that Buddhism may not overcome Christianity, we cannot deny the fact that it has since the last four or five decades most powerfully affected Western thought. Its influence among us is still on the increase, and we can predict that it will contribute its share to a higher development of our religious views by teaching us a way of reconciling religion with science.

Now, to whom do we owe our knowledge of Buddhism? Mainly to such men as Samuel Beal and Spence Hardy, missionaries who for many years lived among Buddhists and translated their sacred scriptures. They were the pioneers in whose footsteps the more scholarly investigators, such as Weber, Roth, Deussen, Rhys Davids, Richard Garbe, Max Müller, and Oldenberg followed. The missionaries went out in the name of the church militant to destroy rival religions; but in the hands of a higher providence they became the very means of preserving them. They were the chief channels through which Buddhism reached Christian countries, and if Buddhists have been unable to send their missionaries to us, our missionaries did *their* work and can now help us to broaden our religion by the breadth of Buddhism.

Some time ago I met a thoughtful, white-haired lady, with enthusiastic spiritual conceptions, and I noted that her views were touched with a Buddhistic vein. Mentioning to her my observation, she told me that reviewers of her books had actually called her a Buddhist. She added: "And my good old father preached against Gautama!" The lady I refer to is Miss Abby A. Judson, daughter of Adoniram Judson, the first Christian missionary to the Burmese Empire, and translator of the Bible into Burmese.<sup>1</sup> Here is a straw

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<sup>1</sup>It would not be correct to say that Miss Judson is a Buddhist, for she neither is nor calls herself a Buddhist. She states that she disagrees with Buddhism in so far as she does not believe in the doctrine of reincarnation. But this much I am authorised to say, that "the daughter of Adoniram Judson, the first missionary to Burmah, has found that the religion of Buddha is very superior to what is known

in the wind, which proves that missionary work is not lost. There is a deep truth in the Biblical saying: "Cast thy bread upon the waters, for thou shalt find it after many days."

Mr. Gandhi has attacked missionaries pretty severely, but he should remember that he himself was a delegate to the World's Parliament of Religions, and delegate is only another name for missionary. He came to this country as a missionary to represent Jainism, to dispel the wrong notions we may have of his religion, and certainly also, to make converts if he can. His work is missionary work, and we thank him for it. We are indebted to him, for we have learned from him and hope that he, too, has been able during his stay in this country to learn from us.

Missions have a broadening influence all around; they broaden the minds of those whom we wish to convert, and what is of still greater consequence to us, they broaden our own minds. But if we are in error, the truth will be attained in the end. Only beware of indifference. The God of Truth is not a partisan, but he respects the truth-loving even if it so happen that they defend errors. We read in the Revelation of St. John:

"I would thou wert cold or hot. So then because thou art lukewarm, and neither cold nor hot, I will spue thee out of my mouth."

Summing up, I say, promote missionary work of all honest convictions; preach the truth according to your best comprehension, in modesty, and with tact; not as a partisan who makes his own confession of faith the measure by which he judges other creeds, but as a disciple of Truth, just to his adversaries and always ready to learn, to grow, and to progress. The inevitable result will be a nearer approach to the common ideal of all religions, the religion of truth,—a religion which stands upon the firm ground of a scientifically sound world-conception.

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as Christianity, especially the Pauline and the 'orthodox' phases of it; and that she thinks it unwise to try to engraft the Christian creed on Buddhistic nations, who would do better to return to the original pure teachings given by Buddha himself, and that she considers Buddhism as second only to the purest conception of modern spiritualism," which is the religious view which she holds.

## DISCUSSIONS.

### MIND NOT A STORAGE OF ENERGY.

IN REPLY TO MR. LESTER F. WARD.

ONE of the most difficult problems of modern philosophy is the formulation of the principles of Monism. Modern thought is pervaded by tendencies toward unity, but the question, "What constitutes a unitary world-conception?" has been answered in different ways by different philosophers, and their definitions are rarely compatible. As a striking instance we call attention to Mr. Lester F. Ward's philosophy, which, although sailing under the same flag, comes, in several important points, into conflict with the Monism of *The Monist*.

Mr. Lester F. Ward unquestionably agrees with us in starting from the principle of positivism, which implies that philosophy must be based upon the facts of experience. He is as radical in principle as we are, but he fails in carrying his radicalism to its last consequences. He aspires for the same goal and in the end we may come to terms if we learn to understand one another, but, so far, we regret to say that he has not as yet freed himself from the shackles of metaphysics. He has thrown overboard the metaphysics of spiritualism or idealism and of ontology, but remains deeply entangled in the metaphysics of materialism which hampers him all the more, as he is unconscious of it.

By metaphysics of materialism we understand a philosophy which reifies matter. Mr. Ward actually believes and maintains that "matter is the thing in itself," and that "its ultimate nature is not known." His argument is:

"Remove matter and there remains nothing to exert force or manifest properties. Dynamism is a form of magic.

"A relation is immaterial, but it can only exist between material things. Think away the latter and nothing remains."

When we think away material things, we do not think away immaterial things, such as energy and motion, forms and the laws of forms, feelings and thoughts. But Mr. Ward means that matter is an essential condition of all these things. Without raising the least objection to Mr. Ward's proposition in the sense in which he means it, we maintain that the same can be said about any other abstract idea or generalisation of a high order. Think away form, and nothing remains; for formless matter is as much a ghost as the matterless force of dynamism. Think away energy and what is matter without it? Think away sentiency and what becomes of the world-picture which constitutes our entire psychical being? Neither we nor anybody would know anything of the world and its problems. The world might exist as stolid matter moving about in space, but its existence would have no meaning, exactly as if it did not exist.

Mr. Ward has not as yet understood the truth that matter is as much an abstract as energy and motion, or as form. He understands that it is a mistake to reify abstracts, such as the faculties of the soul and the laws of nature, but he continues to reify the abstraction "matter." Matter denotes, not an unknown magnitude, not a metaphysical  $x$ , nor the substratum of phenomena, but a well known and clearly definable quality, abstracted by a process of generalisation from the facts of experience.<sup>1</sup>

How much akin Mr. Ward's materialistic metaphysicism is to the psychical metaphysicism of many spiritualists appears from the similarity of some of the modes of his thoughts. Mr. Ward says:

"Eliminate matter and a centre of force is a centre of relation with nothing to be related."

With the same logic the followers of such philosophers as Prof. T. H. Green of Oxford say: eliminate the subject, or ego-centre, and the soul is a centre of psychical relations with nothing to be related.

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<sup>1</sup> For an explanation of "abstraction" see my *Primer of Philosophy*, pp. 118-127.

Matter is not the centre of existence and the possessor of all properties; it is not the substratum of reality; not the thing in itself: matter is one property among many other properties and has no preference before other features of existence. There is no transcendency, no absoluteness, about it.

If Mr. Ward were a little more radical than he is, he would soon find that he can no longer define mind as a property of matter,—as little as he can say that philosophy is a property of the printer's ink with which philosophical books are printed,—and that many conclusions of the monism of *The Monist* which appear to him as concessions to antiquated modes of thought in religion as well as in ethics are not retrogressive but progressive, for they do not revert to the errors of the past, but lead to a new and higher conception in which, however, all that is valuable and true in the old views is carefully preserved, while their superstitions are peremptorily discarded, and the essential is distinguished from the incidental.

It is true that we are more conservative than Mr. Ward, but our greater conservatism is actually due to a more radical radicalism in the theory of method.

The readers of *The Monist* will remember Mr. Ward's article "A Monistic Theory of Mind," (Vol. IV, No. 2, pp. 194-207) which found a brief reply in the editorial article "Monism and Henism" (pp. 232-236), in the same number. With reference to our controversy, Mr. Ward sent us his article on "The Natural Storage of Energy," which we publish in the present number; and he writes in the letter accompanying the manuscript:

"I have received so many letters from those who have read my article in the January *Monist* and my *Status of the Mind Problem*, asking me questions that require long answers, in which I can only restate what is said in this article, that I have decided to try to publish and send it as a general answer to all such questions. The thing that turned the scale and finally determined this action was a letter recently received from Prof. C. Lloyd Morgan, very courteous and appreciative, but propounding questions which it would require me to give him nearly all that is contained in this article in order fully to reply.

"The article also will serve as the only answer I can now make to your own strictures, and will be better than to put it in controversial form."

Mr. Ward's article contains only a few lines which attempt a

reply to our criticism, which, however, are neither convincing nor satisfactory. Mr. Ward seeks his explanation of mind in complexity. He identifies complexity and instability and is satisfied that greater motility implies that psychic property which may fittingly be called *awareness*. Mr. Ward says :

"It is safe to predict higher properties from higher degrees of aggregation. . . . To the complexity of protoplasm is due its motility which is that property which makes it alive, . . . and bound up with this principle of life is this property of *awareness*."—*The Monist*, Vol. IV, pp. 198-199.

Complexity in my opinion, naturally results frequently in an increase of instability, but there are cases<sup>1</sup> in which very complex bodies are more stable than simpler substances. While I freely grant that upon the whole greater complexity will produce greater instability I cannot consider complexity as anything that ever so remotely implies an explanation of mind. If complexity, and with it instability, could explain the origin of feeling, a card house might be suspected of sentiency. Mr. Ward replies in the article of the present number that "the only complexity contemplated is organic complexity." But does he not see that by limiting complexity to organic<sup>2</sup> complexity he assumes what he intends to explain? Organised substance is only another name for protoplasm. What then do we gain by explaining the same thing under one name by referring it to the same thing under another name? What is the difference between "protoplasmic" and "organic" complexity? We have no objection to Mr. Ward's proposition that less active things may be superior to more active things, as (to use his own words) "a noisy person is often more important than a quiet one;" but this very proposition of Mr. Ward's is in our, not in his, favor, and should make him doubt his method of looking for an explanation of mind in complexity and instability, for there is no question that there may

<sup>1</sup> I quoted in the same number of *The Monist*, on page 234, an instance from Lothar Meyer, and have only to add that hexachloride and anoxxygenised nitrates are not, as Mr. Ward seems to think, mere mixtures (see pages 258, 259), but chemical combinations.

<sup>2</sup> Here we follow Mr. Ward's usage of the term "organic." Otherwise we should say "organised." For a discrimination of the two terms see *The Soul of Man*, p. 48.



be substances in this world of higher complexity, greater activity, and more instability than protoplasm. Yet protoplasm is more important, and we repeat that the origin of feeling in protoplasm cannot be explained by the intricacy of its structure.

Mr. Ward seeks the explanation of the characteristic features of evolution in the realm of dynamics. He says:

"Every substance is a sort of battery capable of making effective the otherwise ineffective forces of its elements. . . . The power of substances to produce effects is great in proportion to the degree of organisation.

"The course of evolution has been toward the organised and efficacious through the process of storing energy in appropriate forms. It is the power of doing work that increases with organisation."

The essential feature of animal evolution has nothing to do with the process of storing energy.<sup>1</sup> But Mr. Ward seems to think that every science is but a branch of dynamics. He says in *The Psychic Factors of Civilisation*, page 91:

"All the sciences of the hierarchy deal with forces. . . . There is in all cases a dynamic agent determining the phenomena of every subdivision of knowledge which is entitled to be called a science. The sterility of the old psychology, so long known as metaphysics, was due to the fact that it was without any such dynamic agent."

Mr. Ward, fully conscious of the importance of sentience, attempts to account for its origin. He says on page 252 of the present number:

"The explanation of the origin of sensibility is that protoplasm is of such an unstable and delicate nature that to secure its permanence it must possess some protecting quality, and sensibility is such a quality."

This, of course, is no explanation of the origin of sensibility, even when we grant that protoplasm could not secure permanence without it. We might as well say that the existence of pure spirit is explained (not demonstrated) by the idea of angels, as in order to produce angels nature would have to produce first pure spirit. It is obvious that nature is under no obligation to produce either protoplasm or angels. Mr. Ward has felt this objection, for he says:

"To some it may seem that this [proposition] makes it necessary to invoke design in order to endow it [protoplasm] with such a property, but the leading spirit

<sup>1</sup> For our view of the essential feature of evolution see "The Test of Progress," pp. 36-42, in *Homilies of Science*.

of modern biology obviates this. It teaches that protoplasm could not have come into existence at all without this property. If there had been no such property there would have been no protoplasm, no life, no organic world."

In addition to the futility of Mr. Ward's argument, we call his attention to the fact which, in this connexion, he has strangely overlooked, that there is a whole realm of protoplasmic or organised life devoid of sensibility. Nature secures the permanence of the protoplasm of the vegetal kingdom without sensibility. Plants attain even a very high degree of organisation, and the organisations of the highest plants are, aside (possibly, but not necessarily) from their molecular constitution, more complex than that of the lowest animals.

It is not our intention here either to present a detailed exposition of our own views or to repeat what we have stated in our article "Monism and Henism." Many points of minor interest in Mr. Ward's article to which we take exception, for instance the theory of pleasure and pain,<sup>1</sup> we are unwilling to discuss now, as we wish only in a general way to call Mr. Ward's and our readers' attention to the difference between his and our monism. We are satisfied to state that the problem of mind is the same as the problem of the development of meaning in sentiency, for the nature of mind consists in meaning or representativeness, and conclude with a few remarks on causation.<sup>2</sup>

It appears that our view of causation<sup>3</sup> differs from that of Mr. Ward. According to his view the cause of all lower activity is "the efficient cause, the *vis a tergo*" (present number of *The Monist*, page 253); to which we object that if chemicals which possess sufficient affinity to combine were indeed combined by a *vis a tergo*, by a force which pushes them together, and not by qualities inherent in them,

<sup>1</sup>Mr. Ward declares that "the supply of tissue is attended with pleasure," and "the destruction of tissue results in pain." Our view is set forth in *The Soul of Man*, pp. 338-345, and *The Ethical Problem*, pp. 70-71. We shall be much obliged to Mr. Ward for refuting our criticism of the traditional theory of pleasure and pain.

<sup>2</sup>For a detailed explanation of our view, see *The Soul of Man*, the chapter on 'The Origin of Mind,' especially pp. 27-29, "How feelings acquire meaning."

<sup>3</sup>See our *Primer of Philosophy*, pp. 137 et seq., and compare *Fundamenta. Problems*, pp. 79 et seq., 105 et seq., and *passim*.

we are led to a strange dualism of inert material atoms that are pushed, and an outside force that is pushing them from behind. Our view of causation recognises the presence of spontaneity, a *vis insita*, a force or power within, in the very lowest stage of natural phenomena, and we have at the same time repeatedly called attention to the mistake of considering cause and effect as equal. According to Mr. Ward, the inequality of cause and effect develops by degrees. While in our opinion it is one of the most salient features of causation that cause and effect are *never* equal; otherwise there would be no change. Causation is transformation; it is the preservation of matter and energy in a change of form which takes place according to the laws of motion. The avalanche that buries a huge forest may have been caused by a slight fall of temperature in one little sunny spot of the snow. The inequality between cause and effect may be as enormous in the lowest stage of purely mechanical causation as in the highest stage of mental development. The essential difference between inorganic causation and purposive acts of living beings is not dynamical, but mental. The causative *raison d'être* of lower phenomena, such as gravity or affinity, are marked by an absence of representative feelings; while the causation of human activity possesses the adjustive faculty of representative feelings, or ideas, which determine the direction of the expenditure of energy and make purpose possible by a prognostication of the eventual results of certain actions. The meaning that resides in the sentiency of brain structures plays the rôle of chemical affinity in the realm of mind, and the meanings attached to the various modes of feeling, not any "increments of stored energy" which are "superadded at each evolutionary step," constitute the characteristic feature of mentality.

Mind, in our opinion, is not comparable to a storage-battery, but to a light. The dynamical aspect and an increase of energy, if there is any, are of no consequence in the consideration of mental progress. Mind does not accumulate more and more energies within, but by making feelings representative illumines the world round about, so that we can marshal its forces according to our needs.

EDITOR.

## BOOK REVIEWS.

DIE RELIGION DES VEDA. By *Hermann Oldenberg*. Berlin : W. Hertz. 1894.  
Pages, 620.

At this time of wide-spread and popular interest in the religions of India, Prof. Hermann Oldenberg's comprehensive work on the Religion of the Veda, is highly opportune, for we have here a sober presentation of the Vedic world-conception. The author, well known for his excellent work on *Buddha, His Life, His Doctrine, His Order*, is one of those rare scholars who hold the mirror up to history, reflecting the distant past with the least possible addition of enthusiasm or prejudice. And it is a grand picture which he unrolls before our eyes, one of the most important pages of the history of mankind : the evolution of religion in its sacrificial and sacerdotal phase.

It goes without saying that Oldenberg's book will be indispensable to every one who is working in the field of Brahmanical lore, and in the interest of English readers it is to be hoped that an English translation will soon appear. At the same time we advise students to study Oldenberg's *Religion of the Veda* with constant reference to his translation of the *Hymns of the Rigveda*;<sup>1</sup> for the present work, the *Religion of the Veda*, rests upon Vedic hymns, which are the main and (aside from comparative references to the Zend Avesta and other sacred books) almost the sole source of our knowledge of the religion of the Vedic age. Oldenberg now presents us with what might be called the Isagogics into or a Handbook of the religious notions of the authors of the Veda concerning their gods and demons, and the magic efficacy of worship, of ritual, sacrifice, and prayer, explaining as far as possible their original meaning.

The study of Oldenberg's work will prove a help in two lines of inquiry, in Indology or Hinduism, and in anthropology. We now know that all people on earth travel in their evolution on the same path, they pass through the same phases of totemism, animism, and sacerdotalism to the purer religion of salvation from evil

<sup>1</sup> So far as we know the first volume only has appeared under the title *Die Hymnen des Rigveda*, metrische und textgeschichtliche Prolegomena. Wilhelm Hertz. Berlin. 1888. See also Max Müller's translation of the *Rig-veda-Sanhita*, and the literature on this subject in *The Sacred Books of the East*, especially Vol. XXIX, XXX, and XXXII.

by righteousness; and again from external deed-morality to the highest religious ideal of aspiring after purity of heart. The evolution of the religion of the Hindus is not an isolated but a typical instance of this, and it may be called "classical" because of the completeness of all the essential features which are here present and have been developed without the interference of disturbing influences. What the old Greeks are in art and science, the ancient Hindus have proved to be in religion and philosophy.

Oldenberg's book is divided into an introduction and four main parts.

The Introduction discusses the sources: (1) the Yajurveda containing the *Yajus*, i. e. magic formulas in prose, which are presumably very old, (2) the Atharvaveda, a collection of incantations and rituals; among the latter are marriage ceremonies and funeral hymns. The hymn to the earth is famous for its poetic beauty and psalm-like grandeur. (3) The more recent Vedic literature, as embodied in the Brāhmaṇas and Sūtras, and other non-Vedic sources, especially such as are found in the Avesta and as are afforded by a comparative study of the Indo-Iranian and Indo-Germanic stage of religious life.

The first part is devoted to a general sketch of the Vedic gods and demons, setting forth, as it were, the logic of religious symbolism and mythology. It is strange that the Hindus, unlike the Greeks and the Teutons, did not develop a commonwealth of gods with one supreme ruler as their undisputed master and chief. No Odhin is among them, no Alfadur; no sovereign Zeus appears in the Vedic Olympus. There are indications of a development towards giving this place of honor to Indra, but Varuna with his divine majesty appears as his worthy peer, and the competition of these rival gods found expression in one of the songs of the Rīgveda, (iv, 42).

Varuna says:

"Mine, indeed, is the kingdom to which all the immortals are subject. The gods obey the will of Varuna. I rule supreme over the highest empire above the cover of the heavens. I am King Varuna, and I am the first who owned the magic power," etc.

Indra replies:

"Me, in the race, the men with proud horses invoke, me, in the battle, those who are surrounded by enemies. Races I create, I, the liberal-minded; the dust I raise, I, the greatly powerful. I have done all deeds. No one can oppose my power, which is irresistible. When the soma-drink and the song of praise intoxicate me the infinite double empire of the airs trembles."

Professor Oldenberg proposes a new conception of Varuna. He doubts the identification of Varuna and *Oipavōs*, heretofore considered as well established and prefers to regard Varuna as having originally been the god of the moon, so that Indra would preside over the world by day and Varuna by night. Without attempting to criticise Professor Oldenberg's arguments we must confess that we cannot accept them as convincing.

The second part of the book characterises the various deities. Agni, or the fire, is less personified than Indra, but plays perhaps a more important part in the religion of India, because the use of fire is so intimately connected with both the events of common life and all the various sacrificial ceremonies. Indra is the great hero of the gods. While the fire was constantly visible and thus facilitated an identification of the god and his element, the lightning appeared and disappeared, suddenly leaving a freer field to poetic imagination and naturally suggesting the personification of the thunderer. The seven Adityas who appear in close connexion with Varuna are, according to Oldenberg's plausible demonstration, of foreign origin, and personify the sun, the moon, and the five planets. Their mother, Aditi, is a later invention; her name and nature show a decided abstractness of conception, and she must be regarded as younger than her sons. The word "Aditi" means "unfetteredness," and the goddess with her seven children represents, first, the world-order, as it appears in the cosmic motions of the celestial bodies, and then the moral law of justice. Aditi and the Adityas are invoked for the redemption from sin. He who is tied down by guilt prays: "Redeem us out of the jaws of the wolves, O Adityas, as a fettered thief, O Aditi." The two *Asvins*, the divine twins who ambulate in the early dawn together with *Ushas* (the Vedic *Eos* or *Aurora*), are the morning and evening stars. *Rudra*, from being called the Father of the *Maruts*, the deities of the wind, is generally supposed to be the god of the storm, but Oldenberg classes him as a demon of the woods, together with fauns and sylvans, of the cult of whom Mannhardt has given us a detailed exposition; *Rudra* is an embodiment of evil influences, which must be pacified rather than worshipped. Next in order are the lower deities (among them the *Gandharvas* and *Apsaras*, the former probably elves or spirits of the air, the latter nymphs or spirits of the water), evil demons and heroes.

We touch only lightly on the third part, "The Cult of the Gods," although of special interest, because it contains most of those subjects which, in their artificiality, are peculiarly Indian—the details of the sacrificial rituals, the *Dikshâ*, *Avabhṛitha*, the soma-offering, etc. Sacrifices are not only, as, for instance, among the Israelites, for invocation, atonements, and giving thanks, but also for magic purposes; they are supposed to force and even to conquer the gods. The magic of the medicine-man, which we should expect to disappear at a higher stage of belief in divine power, and of a purer religious worship, is carried to its last consequences and produces innumerable excrescences of superstitions and superstitious rites.

The fourth part ushers us into the realm of the soul, opening before us the vistas of heaven and hell, the mysterious intercession of the dead in the life of the living, the various funeral services, the burning of clothes and other property of the dead, the fate of the widow, and the mourning rituals. The soul (in the Vedas *asu*, and in the Upanishads *purusha*) is originally identified with the breath, while the mind, *manas*, is supposed to reside in the heart. In later periods the word



*atman* (breath, soul, self) replaces the term *asu*. *Asu* is the vital principle, of which every animal is possessed, while *manas* is the rational faculty of thought. The soul is described as a thumb-sized being of ethereal substance, who leaves the body in sleep and swoons, and quits it for good in death to ascend to the world of immortality in the heaven's firmament. The ruler in the empire of the blessed is Yama, Vivasvant's son, the first among the dead and king of all the deceased souls. In opposition to the heaven of the blessed stands the pit (*Karta* or *padam gabhram* = the deep place). Oldenberg rejects the theory of those who deny the existence of a hell in Indian mythology; he argues that the idea of conceiving immortality as a gift for good deeds, while evil-doers are annihilated, rests upon a misconception of the psychology of those ages, for a continuance of the soul's life after death was, according to the old traditions from savage times, a matter of course; and many passages of the Vedas confirm the belief in hell as unequivocally as that in a heaven. The souls of the dead are fed with libations and other offerings, and sometimes they reappear in animals, plants, or stars; they remain in relation to their surviving relatives, whom they afford blessings of all kinds and help in dangerous situations. The funeral rites exhibit many vestiges of more ancient beliefs, which are easily explained by parallelisms in the customs of savages.

That which characterises Hinduism in contradistinction to the Western nations is a softness and indifference, not to say weakness, which knows nothing of the moral worth of combative manliness. Almost all Hindus of higher culture, when speaking of the preferences of their nation, pride themselves on their peacefulness and represent themselves as possessed of a higher morality than their Western cousins. The truth is, that their lessened combativeness is not so much due to a heightened sense of justice as to a lack of strength. Says Oldenberg, on page 2 :

"The separation of the Indians from the Iranians was for those who took the 'step a renunciation, or, rather, the last definitive step towards a renunciation, of 'all share in the great struggle of the races, in which the sound manfulness of the 'Western nations was developed. In the luxurious stillness of their new homes 'those Aryans, the brothers of the most distinguished nations of Europe, mingling 'with the dark, primitive population of India, developed more and more the characteristic traits of Hinduism; enervated by the climate, to which their type, shaped 'in more temperate zones, was not able to adapt itself without heavy loss; enervated not less by that lazy enjoyment which the rich country afforded them after 'their easy victory over their unequal opponents, savages incapable of resistance, 'and by a life which was totally lacking in great problems, in strength-giving sufferings, and in the inevitable 'must.' The intellectual work done among these 'people is poor in traces of that laborious struggling, of which alone it is the privilege to exhaust the profundity of reality and to bring to fruition in mighty joyousness the inner worlds of thought. With playful ease they grasped the surface of 'things, with pictures whose luxuriant character flowed from the individual phantasy, here graceful, there grotesquely intertwined, rich in colors, poor in firm,



"energetically drawn lines, now fusing into one another, now separating from one another, ever and ever involving themselves in new forms."

We quote this passage at length, so that our Hindu friends may read it. There is much food for thought in it, and a proper recognition of the real state of things will greatly promote the progress of India.

The same conditions which gave to the Hindus leisure and wealth may at the same time have promoted the unparalleled supremacy of the priestly caste, of the artificialities of their rites and thoughts, their sportive play with enigmatic propositions, their love of the mysterious, and the unchecked speculative tendencies, which, on the one hand, produced the choicest and richest efflorescence of religious and philosophic ideas, but, on the other hand, left their theories unrelated to the facts of reality. If the Indian nation ceased to progress, if the younger civilisation of the West outgrew her in strength as well as in wisdom and exact science, we must seek the cause, not in incidental historical events, but in the lack of criticism and especially of that self-criticism, which has been forced upon the Western world by competition, by tribulation, and by struggle. The Indian nation, after the expulsion of Buddhism, returned to the old sacerdotalism of the Vedic age; they checked progress by the caste-system, and wear now their self-imposed fetters with an ill-disguised moral pride. But contact with the more powerful European civilisation is now rousing their energies from this lethargic sleep, and if the Hindus but allow themselves to be roused, they will gladly enter upon the path of progress that opens before them. Yet they should know that progress means struggle, and that they have to become strong and active, and that they have to be hardened on the anvil of reality. The Western nations owe much to India and to the thoughts of her ancient sages; the time has come when India in its turn can learn from the Western nations; and there is no question about what they have to learn: it is the method and exactness of scientific inquiry. The ultimate criterion of Truth is not *a priori* speculation, but experience; not subjective thought, but objective reality. *apc.*

THE HIGHER CRITICS AND THE VERDICT OF THE MONUMENTS. By the Rev. A. H. Sayce, Queens College, Oxford. Second Edition. Published under the direction of the Tract Committee. London: Society for Promoting Christian Knowledge. New York: E. and J. B. Young & Co. 1894.

The words of the author in his Preface are very likely to prove true. "I am well aware," he writes, "that the pages which follow will satisfy neither the 'higher critics' nor their extreme opponents." Certainly not the "higher critics." Fire is opened upon them in the second page in the recitation of what he calls "a typical example of the critical method." The "critics" refused to accept his and another scholar's reading of a word on "a small hæmatite weight," a word which the "critics" had referred to a late date. They did not examine the original, but trusted to a cast in which the word in question was not plainly reproduced. Such care, the author adds, "is not in accordance with 'the critical method.'" This denunciatory

judgment is followed by an "*ex hoc disce omnia!*" *With what judgment ye judge ye shall be judged.* Throughout Mr. Sayce's book frequent references are made to the now famous Tell-el-Amarna Tablets (on which the first real light was thrown by Erman and Winckler of Berlin). In *The Academy*, April 7, 1888, p. 246, Professor Sayce writes: "Most of the tablets contain copies of despatches sent to the Babylonian king by his officers in Upper Egypt, and as one of them speaks of the conquest of Amasis (Kasad Amasi), while another seems to mention the name of Apries, the king in question must have been Nebuchadnezzar. The conquest of Egypt by Nebuchadnezzar, so long doubted, now, therefore, becomes a fact in history." (Italics mine.) Not one of these statements, as is now known, is correct. They were all very important statements but one discovers no interrogation marks suggestive of uncertainty.

I will not stop to note other grievous errors in the way of translation from the author's work, which, however, might be done with ease. Not to go outside of this book he translates *uritsu*, "offspring," (p. 185, note) and finds in this monumental support for the sacrifice of children among the Babylonians. The reasoning on which this translation is based does not hold in the science of lexicology. Shall we then add "*ex*" his "*disce omnia!*" and thereby intentionally convey the impression that all the work of Professor Sayce is nullified or vitiated by equally bad blunders? To do so would be eminently unjust to him, and would, I suspect, suggest the *cacoethes carpendi*.

Since these words were written by the author, Robertson Smith has taken pains to examine the weight itself (see *Academy*, November 18, 1893) and suggests, in view of the difference in the writing contained on the two sides, that *shel* is an abbreviation for *shalem*—a view quite different from that entertained by Professor Sayce. Were it clearly proved that the "critics" were in error in one or more cases (as they often have been) this would hardly suffice to throw discredit upon their work as a whole. The impression is apt to be made that the "critics" proceed on the assumption "that before the Babylonian captivity writing was an art rarely, if ever, practised." What proportion of his "religious public," for whom he writes, knows of Havet and Verne of whom this is said to be true? How many of the representative "critics" of to-day are unacquainted with the results of archaeological research? The fact is, the author has taken no pains either to distinguish between the different schools of "critics" or to point out that for more than a quarter of a century, since the time of Graf, the necessity of calling in the aid of archaeology has been fully admitted by the "critics" themselves, and not only admitted but absorbed by "critics" like Delitzsch, Dillmann, Cheyne, and others. It savors somewhat of the unscientific and uncritical method to sweep in all critics from the days of Simon and Astruc down to the latest analyst,—men who knew nothing of modern archaeological achievements,—men who for a time were sceptical of the archaeological conclusions in the period when Assyriology was in its infancy, and men who to-day joyfully accept all that is indubitably proven, and then by the indiscriminate use of

the words "critics," "theories," "assumptions," attempt to bring their work into disrepute. Nowhere in his book does he refer to the "critics" or "critic" (with one or two exceptions) whose theory and conclusions he rejects. Neither does he distinguish between the "higher criticism," in the strict sense, and "historical criticism."

The "higher critics" have just cause for not being "pleased" with the vague denunciations and indiscriminate treatment accorded to them in this work. But how does the case actually stand when we come to look at the real bearing of these discussions upon the conclusions of the critics? Notwithstanding the fact that the author's preface prepares the reader to look for the complete rout of the "critics" he finds that the "critic" has been working his way through this maze of literature with almost the certainty of instinct. And for this reason the "extreme opponents" of the "critics" will look upon the work with dissatisfaction. The book puts in evidence the undeniable testimony of the monuments and the accepted traditional views bow themselves out of this superior court from which there is no appeal.

Let me now indicate how far the conclusions of the critics are justified by the verdict of the monuments as Professor Sayce reads it. In the first place, it is to be remarked that Professor Sayce occupies virtually the same standpoint as the critics. "As long," he writes (p. 26), "as our researches are historical and archaeological the Scriptures of the Old Testament must be for us merely a fragment of that ancient Oriental literature, other fragments of which are being exhumed from the mounds of Egypt, of Assyria, or of Babylonia. They are historical documents which must be examined according to the same method and upon the same principles as other documents which claim to be historical. We must not apply to them a different measure from that which we should apply to the Chronicles of Froissart or the histories of Herodotus . . . the Biblical records have been put into a category by themselves to their infinite harm and abuse." Again (p. 3), "A critical examination of a narrative will also help us to discover whether the document which embodies it is of a simple or a composite nature." But this is what the opponents of criticism deny. They often assert that any literary product may be resolved by the critical method into two or more apparently different documents. Professor Sayce continues: "Modern research has shown that a considerable part of the most ancient literature of all nations was of composite origin more especially where it was of a historical or religious character. . . . The most ancient books that have come down to us are, with few exceptions, essentially compilations." These statements are also denied by the traditionalists.

It will thus be clear, even to the general reader, that while Professor Sayce is of the opinion that the critics have not given due regard to archaeology, and though he states his judgments of the "popes who proclaim their doctrine of infallibility" in a needlessly offensive way, in his principles he does not differ from them. He admits that the archaeologist and the "critic" are agreed in investigating the Scriptures as historians and not as theologians. The Old Testament must be treated as

a fragment of ancient Oriental literature. Neither is concerned with its inspiration.<sup>1</sup> Nor are archæology and criticism irreconcilable foes. "On the contrary," the "learning and acumen" of the critics "have not been altogether in vain." "Much has been established by them, which the progress of Oriental research tends more and more to confirm." "The judgment the 'critic' has passed on the so-called historical chapters of the Book of Daniel has been abundantly verified by the recent discoveries of archæology." These are concessions hard to be reconciled with the frequent denunciations of the "critic" which too often mar the pleasure of reading this valuable book—the best product, I may venture to state, of Professor Sayce's "Protean" scholarship.

Now let us examine the Verdict. At the close of the book the author writes: "The apologist may lose something, but the 'higher critic' loses much more." The reader must judge for himself.

If we refer to one of the latest and best works of the "critics"—*Introduction to the Literature of the Old Testament*, Driver. We read, p. 18 et seq., "The process by which, probably, the book of Genesis assumed its present form may be represented as follows: First, the two independent, but parallel, narratives, of 'the patriarchal age, J. and E., were combined into a whole by a compiler. . . . The whole thus formed (J.E.) was afterwards combined with the narration and by 'a second compiler, who, adopting P. as his framework, accommodated J.E. to it, 'omitting in either what was necessary to avoid needless repetition, and making 'such slight redactional adjustments as the unity of his work required." And Professor Sayce writes, Chapter II, 8, as follows: "One of the most assured results of the 'literary analysis of the Old Testament records has been the existence of documents 'of different age and authorship in the Pentateuch. . . . The literary foundation upon 'which the history and religion of Israel rested is, in its present form, a composite 'work. The fact is fully in accordance with the teachings of Oriental archæology." A parallel is then drawn between this material of the Pentateuch and the so-called Book of the Dead in the literature of Egypt and the religious hymns and ritual of Babylonia. The history of the Book of the Dead reaches "from the days of the pyramid-builders down to the age of the Persian conquest of Egypt." "New chapters were embedded in it, old chapters were modified, glosses and glosses upon glosses were added." "The 'higher' criticism of the Old Testament has thus been justified in its literary analysis of the Books of Moses" (p. 34). Professor Sayce, however, has no sooner acknowledged what a profound knowledge of ancient Oriental literature compels than he proceeds to minimise the value of the critics' work by asserting that the critic has started with a conviction of the modernness of the application of writing to literature, in the true sense of the word, prior to the age of Solon. The fact is, this has had little to do with critical theories.

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<sup>1</sup> Cf. Driver, *Introd.*, p. xi. "The conclusions affect not the fact of revelation, but only its form."

In 1521, Carlstadt was led, through the account of Moses's death being given in Deuteronomy, to put forth his thesis: "*Defendi potest, Moysen non fuisse scriptorem quinque librorum.*" La Peyrère in his *Systema Theologicum ex Preadamitarum Hypothesi* (1655) declared that Moses had kept a written diary. Spinoza, 1670, who thought Ezra might have compiled it from different histories, was influenced wholly from the literary side. Simon, 1678, believed that Moses wrote the laws. Astruc, 1753, discovered that the names of *Elohim* and *Yahweh* interchange throughout Genesis and made the documents in which they occur *les memoires originaux* which Moses used in the composition of Genesis. Ilgen, 1838, believed that the sources of the Pentateuch were certain records that had been preserved in the temple-archives of Jerusalem, and which had been compiled by three different authors. In 1831, Hartmann denied that Moses had participated in the production of the Pentateuch. The Hebrews, he taught, had learned the art of writing in the time of Samuel. In 1838, Kurtz referred Deuteronomy to Moses. So also Schultz, who referred the main source of Genesis to primitive tradition, which had been written down prior to the exodus. Nor have later critics been misled by this assumption. What reasons does Cheyne assign for rejecting the Jewish tradition which attributes the authorship of Ecclesiastes to Solomon? This is what he says: "Whichever way we look, whether to the social picture, or to the language, or to the ideas of the book, its recent origin forces itself upon us" (*Joh and Solomon*, p. 225). Riehm (*Einleitung in das A. T.*, p. 53) says distinctly that "the Semitic people had an alphabetic writing in pre-mosaic times." Professor Sayce writes (p. 60 "the 'higher critic' may be right in holding that the historical books . . . are compilations of a comparatively late date, but he is no longer justified in denying that the materials they embody may be contemporaneous with the events recorded in them." And Cornill, a disciple of Wellhausen, said before this (*Einleitung*, p. 14) that we cannot deny a knowledge of writing to Moses. The reasons for assigning the Pentateuch in its present shape to a late date are derived from the study of the history and literature itself. The requirements of the Pentateuch were unheeded, say the critics, from the time of Moses to Ezra, even by the most zealous reformers. Men like Samuel, David, and Isaiah, had they known it, could not have so completely ignored it. The sacrifices enjoined and ritual prescribed were weighed against by the prophets, they claim, in such a way as to preclude a knowledge on their part of Mosaic legislation.

The interesting facts adduced in Chapter II in support of the antiquity of Oriental literature do not, therefore, affect the critical conclusions which assign the Pentateuch to a late date.

Chapter III, which deals with the Babylonian element in Genesis, shows how the latter is dependent upon the former. "The resemblances between the two accounts of creation are too great to be purely accidental. They extend even to words." The *reshith* "beginning" of Genesis i, 1, corresponds to the *ristu* of the Assyrian story of creation. The Hebrew word *tehom* (deep) is the Assyrian *tihantu*.

The Sabbath-rest was a Babylonian institution, and the word Sabbath of Babylonian origin (*Sabbatu*). The Tell-el-Amarna tablets prove that Babylonian influence and literature were strongly felt in Canaan before its conquest by the Israelites.

Professor Sayce rejects (as the writer has done for the past eight years) the explanation of *Elohim* (God) as a *plur. majesticus*, etc. The Tell-el-Amarna tablets now show that a similar use of *ildni* prevailed in the Babylonian language. The presence of the word in Genesis, however, proves nothing as to the date of the document as it occurs throughout Hebrew literature.

When we come to the account of the flood, Professor Sayce says (p. 115): The resemblances between the Babylonian and Scriptural accounts are so obvious that instead of dwelling upon them he will point out "only the differences." He accepts the analysis of the flood story into a Jehovistic and Elohist (p. 116) and states (p. 117) that in Babylonia there were also "several versions of the story." Both stories he refers to the same Babylonian source (*So. Del. Par.*, p. 94), suggesting that the writers of the Tell-el-Amarna tablets may have been acquainted with the Chaldean Epic in which the episode of the flood occurs. The deluge-story may have been introduced into the West before the age of Moses, and the similarity between the Biblical and Babylonian accounts does not therefore indicate a borrowing from the latter during the exile. This opinion is contrary to that previously held both by some Assyriologists (Delitzsch, Schrader) and by some critics (Kuenen). But it is in full accord with Dillmann (Genesis vi, 9 et seq.) who says: "If the cuneiform 'narrative of the deluge-story actually found its way to the Israelites during the 'period of the Kings there was no reason why they should accept it, unless some 'information about a flood had been current among them."

On the much discussed Chapter X of Genesis Professor Sayce has outdone the critics. This, too, is the place *par excellence* on which archæology has flashed its light. The evidence bearing upon this chapter is summed up (p. 152) as follows: "The episode relating to Nimrod forms . . . a part of the Babylonian element . . . 'it is foreign to the original plan of the tenth chapter.'" The subject-matter may have been derived from documents older than the age of Moses, but the "main part of the chapter" brings us down to the period when the Kimmerians appeared in Western Asia and the Lydians served in the armies of Egypt—the period of *Ezekiel*. Usually the critics are content to refer only the Elohist portion of this chapter to a late date. (See Bacon, *Genesis of Genesis*.)

In discussing the fourteenth chapter of Genesis, Professor Sayce brings out very clearly the value of recent discoveries in Assyriology. He makes it appear quite probable that the history contained in the chapter is drawn from cuneiform sources, but when he says (p. 161) that "the campaign of Chedorlaomer and his allies has been proved to be historical," he states as fact what, at best, is only an inference.

In omitting to state that the credibility of this narrative had been upheld by the "higher critics," Ewald, Delitzsch, and especially Dillmann, he does injustice



to himself and the "critics." Kuenen, Nöldeke, and others denied it. But Dillmann, *Gen.* 1886, pp. 231 et seq., also 1882, pp. 218 et seq., argues at length not only for its historical character, but also for the possibility of its having been excerpted from a foreign document. Ewald argued from the designation of Abram in verse 13 as "*the Hebrew*" that the narrative was drawn from a foreign source. Professor Sayce seems to be unconsciously influenced throughout by the fact that he is writing for the Religious Tract Society. The balance is constantly being struck in favor of the traditionalist. On page 172 he says "the net result," while it justifies the belief that Genesis "is a compilation, it only partially justifies the theory as to the nature of that compilation." Which theory? "Nimrod is a historical personage, and the historical character of Chedorlaomer's campaign has been amply vindicated." All that the facts adduced by Professor Sayce, or afforded by Assyriological research up to date, warrant us in saying of Nimrod or of Chedorlaomer's campaign falls short of these pretended apodictic statements.

Chapter IV deals with the Canaanitish and Egyptian elements in Genesis. It is an overstatement of the facts to speak (p. 177) of "the vindication of the historical character of Melchizedek." The Tell-el-Armana tablets afford us information which strengthens the view held by such "critics" as Delitzsch, Dillmann, Diestel, that the facts of the record are historical. Professor Sayce has brought together in this chapter much information, not always fresh, however, but valuable and militating in no way against the critical analysis. On page 231 it is said that we may yet find "below the documents which criticism claims to have discovered there is an 'earlier stratum of literature which in its origin is partly Babylonian, partly Egyptian, partly Aramaic, partly Edomite, and partly Canaanitish.'"

Throughout, Professor Sayce, while apparently disputing the conclusions of the critics, is in reality in much closer accord with them than he seems to suspect. Referring (p. 309) to Joshua, chapter xi, he says that the conquest of Jabin of Hazor is "inconsistent with what we are told in the Book of Judges, and it would therefore seem that a conquest is ascribed to Joshua which really happened at a later date." "The chronology in the second Book of Kings is more than forty years 'in excess.'" In the face of Joshua x, 40-43, he says (p. 359) that "the common belief that the Canaanites were exterminated before the children of Israel is not 'supported by the statements of the Old Testament writers.'" This statement in Joshua may be incorrect and out of accord with "archæology and philology" and with II Samuel xv, 18, 19, and vi, 10, and with other passages in Joshua, but it is quite explicit: "He left none remaining," Page 373 Mesha (the Moabite) "ascribes his victories to Chemosh just as the victories of Israel were ascribed to Jahweh." The history and documents of Israel cannot be separated from those of surrounding nations and judged by a different standard (p. 375). "The assertion of the Biblical writer that Mesha did not rebel until after Ahab was dead cannot be strictly correct" (p. 370). We must not look for "a colorless narrative" from the Jewish historian. He wrote "to celebrate victories," not disasters. Neither must



we expect "strict accuracy of language," nor the "critical judgment of a Gibbon or Grote" (p. 372).

Professor Sayce shares the judgment of the critics on the author of *Chronicles*. Like the "commentators down to the time when the Assyrian inscriptions were discovered" he drew "erroneous inferences" from what he "had read in the book of Kings," thus making Pul and Tiglath-Pileser two distinct persons, when Pul was only another name for the Assyrian king. "The Chronicler displays that partiality" "for large numbers which is still characteristic of the Oriental." Here we find the beginnings of the Jewish Haggadah. The Book of Jonah "belongs to a later period than the age of the prophet Jonah, the son of Amittai" (p. 487). Esther belongs "to the Jewish Haggadah" (moral romances). With reference to the Book of Daniel contemporaneous evidence shows that Belshazzar "never became king"; neither was he the son of Nebuchadnezzar, "as we are repeatedly told in the fifth chapter of Daniel." He was the son of Nabonidus, who was a usurper and without connexion with the family of Nebuchadnezzar. "Darius, the Mede," is a reflexion into the past of Darius Hystaspes. Many points are urged in support of a *late* date. The author was unacquainted with the language of Babylonia and lived "at a period later than Alexander the Great."

Such is the verdict, and its almost complete accord with "critical" results makes it all the more to be deplored that Professor Sayce "has treated," to use his own phrase, the "critics" with such "scant courtesy." It is to be regretted that he did not discriminate between the "critics" and tell his readers to whose views the conclusions he draws from the monumental records are opposed. It is most of all to be regretted that the impression should be made upon those who are not acquainted with the history of criticism, and with the conclusions accepted by the more moderate critics, that the traditional views have been confirmed and the "critics" buried with the same spade. Professor Sayce does not say so, but unfortunately the inference is drawn, hence a reputed scholar, who has read the "Verdict," not long since proclaimed to his audience that the "Scriptures are accurate, even in the details." This, too, in a University town!

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THE DAWN OF ASTRONOMY. A Study of the Temple-Worship and Mythology of the Ancient Egyptians. By J. Norman Lockyer, F. R. S., etc.; etc. New York and London: Macmillan & Co. 1894. Pages 432.

Most of the recent progress in astronomy is due to the aid which it has received from other sciences; and this debt, which Professor Lockyer acknowledges in his preface, he has undertaken in the present work to in part repay to the benefit of the science of religions.

His excursion into this unaccustomed field was first suggested by the peculiar placing of the Parthenon and the many changes of direction in the successive re-

buildings of the temple at Eleusis, as revealed by the French excavations. These circumstances attracted his attention while making a casual examination of the ruins in the company of a friend during a holiday tour of the Levant.

Recalling the fact that in England the eastern windows of properly constructed churches are supposed to face the place of sun-rise on the feast-day of the saint to which they are dedicated, he made a careful note of the orientation of the foundations in question. After his return he endeavored to ascertain whether the subject had ever been worked up, but could then learn of nothing except in regard to the Christian churches of England and Germany.

On account of the presumable dependence of the Eleusinian temple-building upon ideas of Egyptian origin, he examined the data regarding the orientation of Egyptian temples collected by the French in 1789 and the Germans in 1844. He soon became convinced that astronomical considerations had determined the manner of their construction, and in a course of lectures delivered at the School of Mines in 1890 (published in *Nature*, April-July, 1891) he pointed out the probable utility of a study of the exact bearings of the religious edifices of Egypt in the light of astronomical facts as a means of ascertaining the exact dates of their foundation and of obtaining a fuller knowledge of the origin and significance of the Egyptian mythology.

Shortly afterwards he proceeded to Egypt to make some inquiries and investigations on the spot, for the purpose of verifying and correcting the published orientations, and gathering connected data important to a determination of their true astronomical and religious significance. The work before us is chiefly based upon the notes made during this trip, from which he returned in March, 1891, in connexion with the great official reports of 1798 and 1844 (Napoleon and Lepsius), and a series of papers on the orientation of ancient temples previously published by Professor Nissen, of Germany (in the *Rheinisches Museum für Philologie*, 1885), which Professor Lockyer did not see until after his investigations in Egypt had been made.

The author has availed himself freely of the personal assistance of Professors Maspero, Krall, and Müller in the general work, and of Sayce and Jansen in his comparative studies in Babylonian astro-mythology. He very modestly disclaims any pretensions to being considered an Egyptologist, and publishes this book as a suggestion and guide to future work rather than as a summary of definite results. Final conclusions, he says, can only be reached after a great deal of very patient and laborious special work has been done, both on the astronomical and archaeological sides, directed towards the collection of a far more full, exact, and reliable series of data than is now in existence.

The most important part of this work is a re-survey of the temple sites, with modern instruments and methods. Then the astronomers must prepare tables of the rising and setting conditions of the stars for a period extending to at least seven thousand years before Christ. The table published by the German Astronomical

Society, which is the best thus far available, goes back only to 2000 B. C., and does not include the southern stars. In the meantime, the Egyptologists must arrange tables of synonyms, showing the local names of mythological personages, and the animals, or tribal totems, with which they are severally identified in different parts of the country. "After this work has been done," he says, "it will be possible to begin to answer some of the questions which I have only ventured to raise."

Professor Lockyer enters upon his subject by a few general remarks regarding the astronomical and astro-mythological data yielded by the surviving records of ancient civilisations.

The first civilisation so far traced was in the Nile valley and adjacent countries of Western Asia. In Egypt we can go back six or seven thousand years, in Babylonia over five thousand (but with evidence that eclipses and other astronomical phenomena had been observed there for some thousands of years before that time), and in China and India, where monumental remains are lacking, and we have to depend upon traditional evidence, at least four thousand.

An examination of the texts, on stone, or brick, or papyrus, or paper, which record the thought of this remote antiquity, shows that the observation of the heavenly bodies has passed through three distinct stages, the first characterised by a feeling of wonder and worship, the second by a desire for immediate practical advantage and for secret information as to the present or future affairs of men (astrology), and the third by a love of knowledge for its own sake.

The last phase, which seems to have been reached in Egypt and Chaldea before 300 B. C., now prevails in civilised countries; and this scientific interest is practically the only one which astronomy has for us moderns. But for thousands of years before the scientific profession had arisen the phenomena of the heavens were carefully studied and recorded in the religious, agricultural, and astrological interests. So closely was this study bound up with religion in the earliest times that in ancient Babylon the sign for "god" was a star, and a group of three stars is one of the Egyptian hieroglyphs for the plural "gods." Oddly enough the worship stage of astronomical research is entirely missing from the annals of the ancient Chinese, the utilitarian motive having apparently dominated there from the first. In India, of whose early mythology we have a very full record in the Vedas, the sun and the dawn, the over-arching heavens, the earth, and the fire, and the waters, and the storm-clouds, were the deities first adored.

In Egypt we find a similar state of affairs. The sun and the dawn were the chief objects of worship from the very earliest times, and everything connected with the sunrise and the sunset was worshipped. Under countless names the same diurnal or perennial phenomenon was recognised and venerated. The rising or Child Sun was the hawk-headed Harpocrates, Hor, Horus, or Chepera; the sun of noon was Râ, the evening sun Tum or Atmu, and the sun already set Osiris. Amen-Râ probably signified the sun at the summer solstice, and Sebak-Râ (with the crocodile head) and Chnemu-Râ (with the ram's head) possibly had reference to other spe-

cial seasons of the year, while Min-Râ signified the everlasting and vivifying solar energy.

Antithetical to the sun was a god of darkness variously known as Sit, Set, Sut, Anubis, Typhon, and Bes, and by countless other appellations. Anubis is represented as a jackal, and the goddess Taur-t, the feminine counterpart of Typhon, is represented as a hippopotamus.

Besides the sun-gods and the gods of darkness there are two moon gods, Thoth and Chons, and a goddess of the stars or of the starry heavens called Sesheta.

A large number of divinities are associated with the phenomena of dawn and twilight. Isis represents both dawn and twilight, but especially the sunrise; Nephthys represents both, but especially the sunset. Shu is also the dawn, or the sunlight in general or the air, and Tefnut represents the colored rays at dawn. Shu and Tefnut are called the Eyes of Horus. Neshem is the green-tinted dawn, and Sechet is the fiery dawn.

The sky is Nu or Nu-t, and with it Hathor, the female power of Nature, is sometimes identified. Seb is the earth. Chnemu, the Moulder, is connected with Râ; and Ptah, the Opener, often appears as a form of Osiris.

The under-world, Amenti, the abode of the dead, was the place below the Western horizon where the stars which died on the horizon lived until their rebirth in the East on the morrow.

Much attention was paid to the fixed stars from the earliest times of which we have any knowledge. One of the chief duties of the sacrificial priests was to watch for the stars which heralded the dawn, and thus gave warning when to prepare for the sacrifices which were offered at daybreak. These morning-watchers soon acquired a knowledge of star-places and compiled lists of decans, or belts of stars the rising of which followed each other by ten days or so. "These are the exact equivalents of the moon stations which the Indo-Europeans and other peoples invented for the same purpose." Moreover, the daily risings of the chief stars were observed very carefully throughout the year.

These facts have long been known; but the important circumstance that the placing of the temples was determined by astronomical considerations has hitherto escaped attention. It has been customary to accept the statement of Vitruvius that the temples were built simply to face the Nile. Archaeologists who had personally investigated the matter, however, found that their arrangement was principally characterised by the want of it, as they faced in all directions, apparently without any system or order whatever. Their natural conclusion was that the Egyptians had a sort of symmetrophobia, mitigated perhaps by a general desire that the temple should face the Nile. But when the orientations are carefully studied (due allowance being made for the magnetic variation) with reference to the dates of their erection so far as known, it is found that their axes were always directed towards some celestial body at its rising or setting on some day of critical interest either from the astronomical, agricultural, or religious point of view.

Every temple was so built that its central axis was open and commanded a view of the horizon. Usually it had a large number of halls, corridors, porticos, and approaches, but the doors were so cut and the spaces so arranged that there should be no obstruction along that medial line. The opening on the outside was quite broad, and each succeeding partition narrowed it somewhat until in the Holy of Holies only a very narrow entrance remained, but always exactly opposite the centre of the outer opening often more than five hundred yards away. This arrangement was determined by the same principle which governs the construction of the telescope. "They wanted to keep the light pure and to lead it into their sanctuary "as we lead it to the eye-piece. To keep the light that passes into the eye-piece of "the modern telescope pure, we have between the object-glass and the eye-piece a "series of what are called diaphragms; that is, a series of rings right along the "tube, the inner diameter of the rings being greatest close to the object-glass and "smallest close to the eye-piece; these diaphragms must so be made that all the "light from the object-glass shall fall upon the eye-piece, without loss or reflexion "by the tube.

"These apertures in the pylons and separating walls of the Egyptian temples "exactly represent the diaphragms in the modern telescope" (p. 108).

Through this horizontal telescope formed by the temple axis the first rays of the sun or star at its rising, or the last rays at its setting, would flash for a few minutes into the darkened sanctuary at a certain time in the year, thus furnishing data for exact astronomical calculations, and at the same time forming a most impressive culmination to the festal rites with which the occasion was celebrated.

A classification of the temples according to their orientations separates them into several groups according as they are oriented (1) towards the rising or setting of the sun at the summer or winter solstice, (2) towards the rising or setting of the sun at the equinoxes; (3) towards the rising or setting of the stars in the northern heavens; (4) towards the rising or setting of stars in the southern heavens.

The chief stars thus far ascertained to have special temples are the southern stars Sirius, Phact ( $\alpha$  Columbae),  $\alpha$  Centauri, and Canopus ( $\alpha$  Argus); and the northern stars Dubhe ( $\alpha$  Ursae Majoris),  $\gamma$  Draconis, Capella, and Spica. Seven temples built between the years 3150 and 700 B. C. have been identified as directed towards the rising of Sirius at the summer solstice. Phact, which preceded Sirius as a warning star for sunrise at the summer solstice, has twelve temples, erected between 3700 and 900 B. C. Nine temples, built between 3700 and 2450 B. C., are connected with  $\alpha$  Centauri, which then heralded the sunrise at the autumnal equinox. Dubhe has three known temples (5200-4200 B. C.), and  $\gamma$  Draconis which, after Dubhe became circumpolar and ceased to rise and set, succeeded it as the representative of the northern stars, and which announced the sun at the autumnal equinox a thousand years before  $\alpha$  Centauri, seven temples (4600 to 1200 B. C.).

To Canopus, which at first set just after the sun at the autumnal equinox, are credited eight temples (6400-300 B. C.). The temples directed toward Capella and

Spica were not associated with equinoxes or solstices, but nevertheless, as in the other cases, they admitted the light of those stars on days when they rose or set with the sun. Capella had five temples, built between 5350 and 1750, and Spica two temples, built about 3200 and 1900 B. C. respectively. Antares ( $\alpha$  Scorpii) rose heliacally at the autumnal equinox, and Aldebaran and the Pleiades at the vernal equinox, when some of the equinoctial temples were built, and were doubtless observed and venerated in them. Besides the stars thus far named, Arcturus,  $\alpha$  Leonis,  $\alpha$  Phenicis,  $\beta$  Muscae,  $\alpha$  Trianguli,  $\alpha$  Pavonis, Altair, and  $\beta$  Argus are suggested as having probably received attention as the patronal stars of temples, on account of the positions which they occupied in relation to the solstitial or equinoctial sun during some part of the temple-building period; and Vega is supposed to have preceded Dubhe as the representative of the northern stars.

Temples could only be oriented towards the stars which rise and set; but the circumpolar stars which never disappeared were distinguished sharply from the rest, and received special attention at a very early date, being regarded as the special representatives of the powers of darkness, and consecrated to Set (= Anubis, Typhon, Tebha), who was at first among the greatest of the gods. At Thebes, where the area of the stars always visible was only about one-fourth of what it is with us, the chief circumpolar stars were those included in the constellations of the Thigh (Great Bear), the Hippopotamus (Draco), and the Jackal (the Little Bear); and these were called respectively the Thigh of Set, the Wife of Set (Taur-t), and the Jackal of Set. As the hippopotamus was not indigenous to Upper Egypt it came in the later astrology to be replaced in great measure by the crocodile. Set or Anubis was sometimes identified with the constellation of Ursa Minor, and was accordingly represented with a jackal's head. More frequently, however, Set is a generic name for all the northern constellations and for the darkness over which they reign.

The Egyptians were great generalisers, and many of the names which are particularly applied to the sun in some specified part of its daily round are so extended as to refer to stars in an analogous position. Thus, the word Horus really signifies the sun or any heavenly body rising. The planet Mars becomes Hor- $\chi$ uti, the Laughing or Red Horus; Orion rising becomes Sah-Horus, and the most northerly of the stars that rise become Set-Horus. The myth regarding the combat of Horus with Typhon to revenge the death of his father, Osiris, signifies that the rising sun destroys the circumpolar stars, who at twilight had conquered the sun of yesterday. This myth was at first depicted as Horus slaying the hippopotamus or the crocodile (Draco), but in later times when Draco ceased to be circumpolar the Hippopotamus was replaced by the Thigh of Set (Ursa Major), which in 2000 B. C. occupied exactly the same position as Draco had three thousand years before.

Osiris and Isis were, like Horus, generic names for a whole group of analogous celestial phenomena. Osiris stood for any celestial body becoming invisible; not only the setting sun, but the waning moon, or planets and fixed stars at their setting or when paling at dawn. The planet Venus often receives the appellation;



Orion paling before the sun is called Sah-Osiris, and the forms Khons-Osiris, Ptah-Osiris, and Min-Osiris appear to be the stars Canopus, Capella, and Spica at their setting. The mummy form habitually marks a setting star, and the horns and disk a rising one. The one is Osiris and the other Isis.

Isis stands for "anything luminous to the eastward heralding sunrise." Sometimes it is the dawn, sometimes the moon, sometimes  $\gamma$  Draconis, sometimes Antares, sometimes  $\alpha$  Centauri, sometimes  $\alpha$  Columbae, and sometimes Sirius. As  $\gamma$  Draconis it is synonymous with Hathor (hawk, hippopotamus), Mut (vulture), Sechet or Bast (lion or cat), Menkh, Tafnet, Apet, and Nebun. As Antares it is Serk-t; as  $\alpha$  Columbae Techi and Amen-t; as Sirius Hathor (cow) and Râ-t. Anuqua, Hak-t, and Maloul are also forms of Isis, but their astronomical relation has not yet been determined.

Isis in one or another of her forms (Hathor, Remen-t, Serk-t, Râ-t, Amen-t) is often represented as nursing Horus; "the original symbolism is that Isis or Hathor "is the star rising in the dawn, watching over the sun or taking him from his cradle; and the young Horus, the Rising Sun, is, of course, the son of Isis."

Professor Lockyer supports the foregoing identifications by evidence from the inscriptions and other subsidiary sources, but more particularly upon the comparative study of the orientation of the temples in successive periods.

This brings us to the interesting and important conclusions regarding the general religious history of Egypt towards which the data collected by Professor Lockyer point. The monuments seem to represent four schools of religious thought and astronomical interest, devoted respectively to the solstitial sun, the equinoctial sun, the northern stars, and the southern stars. The Northern School is related to the solstitial, and the Southern to the equinoctial; and the evidence, taken altogether, indicates that these two main divisions represent two races which maintained a struggle for the supremacy for more than three thousand years. The outline of the history is reconstructed by Professor Lockyer's hypothesis as follows.

6400 B. C. A swarm of worshippers of the moon and the equinoctial sun come down the Nile and possess themselves of the country, which they find occupied by a population worshipping Râ and Atmu. The invaders build temples at Amada, Senneh, Philae, Edfu and elsewhere to Osiris their moon-god, directed towards the autumnal equinox, which marks the beginning of their lunar year. They inaugurate what the Egyptian annals call the divine dynasty of Osiris.

5400 B. C. Invaders from the north-east bring the worship of Anu and the northern stars. One swarm comes by the Red Sea, and founds temples at Redisieh and Denderah; another may have come over the isthmus and founded Annu. Either they came from northern Babylonia or else other swarms of the same race invaded that country at the same time. The divine dynasty of Set begins.

5000 B. C. Horus and his Blacksmiths (*Hor Sheshu*) come down the



river to revenge his father Osiris by killing the murderer Set. In other words, they have come to assist the former southern invaders who worship Osiris against their conquerors from the north-east who have replaced him by Set. The southern people have now become sun-worshippers, and Osiris means the sun as well as the moon.

The people from the north-east are beaten, and there is an amalgamation of the *original* and Southern cults. Set is retained, however, and Anubis presides over sepulchres. The priestly headquarters are now at Annu and Abydos. At Annu both the sun and northern stars are worshipped, but at Abydos Osiris, now a sun-god, reigns supreme.

4000 B. C. Another swarm from the north-east, this time certainly from Babylonia and apparently by the isthmus only, since no east and west temples are found on Red Sea routes. They not only worship Anu, but also the spring equinox sun-god.

3700 B. C. The Southern people at Barkal and Thebes in force; temple-building on a large scale. Chnemu begins to give place to Amen-Râ. Still more blending between original and Southern peoples.

3500 B. C. Final blending of North and South cults at Thebes. Temples founded there to Set and Min on the lines of Annu and An.

3200 B. C. The worship of Amen-Râ established at Thebes. Supremacy of the 'Confraternity of Amen.' This marks the final religious unification of the country."

A tentative list of the original members of the rival pantheons is attempted, which we also reproduce.

#### NORTHERN SCHOOL.

GODS.	GODDESSES.
Ptah = Capella, and the April sun.	Bast-Isis = $\alpha$ Ursa Majoris.
Anubis = Northern constellations.	Taurt-Isis = $\begin{cases} \alpha \text{ Ursa Majoris.} \\ \gamma \text{ Draconis.} \end{cases}$
Min } = May sun.	Menat-Isis = Spica.
Khem } = Autumn sun.	Serk-Isis = Antares.
Spring sun.	Nit-Isis = Pleiades.

#### SOUTHERN SCHOOL.

GODS.	GODDESSES.
Osiris = Moon god.	Texi-Isis
Chnemu = Sun god, autumnal equinox.	Amen-t-Isis
Khonsu = Canopus, warning star at the autumnal equinox, on the western horizon; followed by	} = Phact, afterward Sirius.
Serk-t = $\alpha$ Centauri, on the eastern horizon.	Hathor-Isis

#### UNITED SCHOOL.

Amen-Râ = Sun god.

The temples, pyramids, and great Sphinx of Gizeh belong to the Southern or Equinoctial School, and the Colossi of Memnon to the Solstitial School.

The inscriptions state again and again that the gods associated with southern stars came from a locality called the Land of Pun-t, which was always considered a holy land. Brugsch supposed it to have occupied the south and west of Arabia Felix, but Maspero and Mariette identified it with a part of Somáli Land bordering on the Gulf of Aden. The inscriptions, especially those at Dêr el Bahair, have made it certain that Pun-t was in Africa. The pictures of Hottentot women, pile-dwellings, and elephants, and references to other products of the country, all point to a southern part of the African continent. This indicates the truthfulness of the ancient tradition recorded by Maspero that the shores of Pun-t were bathed by the waters of an unknown sea (Lake Victoria Nyanza) which could be reached by going up the Nile.

Professor Lockyer strengthens his conclusions by craniological evidence, Virchow testifying that the skulls from the ancient empire are brachycephalic and those from the new dolichocephalic or mesacephalic.

Although Egypt is the principal subject of the book, an interesting series of parallel facts regarding other countries is given. Those referring to Babylonia and Syria are of special importance on account of their bearing on the question of the origin of the Equinoctial School of Egyptian astro-mythology. Also the influence of the Egyptian temple-architecture upon the Greek is traced, and numerous instances of orientation in other countries cited.

Whatever may be thought of the specific conclusions in matters of detail at which Professor Lockyer arrives, it is undeniable that he has opened up a new and exceedingly interesting and important field of research. The history of religions cannot fail to be an immense gainer from this application of exact science to the solution of some of its most fundamental problems.

There is of course danger that the star-theory, like every other explanation of religious origins that has ever been attempted, may be overdone, and structures really built at random, or in relation to terrestrial conditions of some kind, may be too hastily connected with some celestial body or phenomenon. It is conceivable that an apparent orientation might be a mere fortuitous coincidence; though as far as Egypt is concerned there is such a multitude of such instances, and such a converging of all possible lines of evidence towards the same result, as to carry the matter entirely out of the realm of plausible speculation into that of ascertained fact.

But, as Professor Lockyer constantly reiterates, he has merely broken a path into a wonderland whose countless treasures still remain to be gathered by the assiduous investigator. The question of tribal totems and their exact relation to the members of the Pantheon and the heavenly bodies which they represent is an exceedingly interesting one, which calls for much accumulative labor and much care-

ful and painstaking comparison with corresponding features in the religious life of other peoples of every degree of culture all over the globe.

It is scarcely necessary, considering from what press it comes, to add that the typographical get-up of Mr. Lockyer's book is exceedingly good. The paper is excellent, the print is large and clear, and the illustrations well chosen and finely reproduced. In a few instances a plate is laterally reversed, or a pair of reference letters interchanged, but the errors are quite unimportant ones and readily detected.

As the work is one of the most important of the year, and on a subject which is surrounded with obscurities and technicalities, the literary public may well congratulate itself on having it in so attractive and readable a form, and both author and publisher deserve much credit for the result.

ΣΥΛ.

FROM THE GREEKS TO DARWIN. An Outline of the Development of the Evolution Idea. By *Henry Fairfield Osborn, Sc. D.* New York and London: Macmillan & Co. 1894. Pp. 259. Price, \$2.00.

The present volume forms the opening number of the Columbia University Biological Series edited by Henry Fairfield Osborn, Professor of Biology in Columbia College, and formerly Professor in Princeton. The work is dedicated to Dr. McCosh, and is one of the many good results of the impetus that that lamented teacher gave to the study of philosophy in America. The volume grew out of lectures first delivered in Princeton in 1890 upon the period between Buffon and Darwin, and completed in a fuller course at Columbia in 1893. The chief object of the author is to bring forward the many strong and true features of pre-Darwinian evolution, usually passed over or misunderstood, to place before the reader the evidence of continuity in the development of the evolution idea, and to trace the lines of this development through the history of philosophy. An excellent idea in the plan of the lectures is that of the "environment" of the evolution idea. Professor Osborn sees, and clearly states, that ideas are a product of nature; that they grow and develop like living organisms and that the general features of evolution may be traced in them also. "The final conception of Evolution is to be regarded as a cluster of many subsidiary ideas, which slowly evolved in the environment of advancing human knowledge. Like an animal or plant made up of different parts which have been added one by one along the ages, we can take up this history as we should a bit of biological research; consider the idea as living and still growing, and seek the first stages of each of its parts." The title of the work is a happy one, and seems to have been suggested by Zeller's *The Greek Predecessors of Darwin*. The excellent bibliography appended to the lectures shows that Professor Osborn has employed the best obtainable sources in the philosophy of the subject, and although he lays little claim to originality in the conception and execution of the work, his reputation as a practical biologist leads the reader to expect that his material will be placed under new and instructive points of view.

Throughout the whole history of philosophy and science, the speculations upon

the origin of life and the nature of the organic world form a continuous whole. The influence of early upon later thought is greater than is usually believed, and especially to the Greeks Darwin owes more than has been recognised or at least been explicitly stated. The evolution-law was not reached by any decided leap, but by the progressive development of a large group of subordinate ideas. To trace these lesser ideas to their sources, and to bring the comparatively little known early evolutionists into their true relief is, as above stated, the task which Professor Osborn sets himself. The non-appreciation of the continuity of evolution thought, with the lack of sense of proportion as to the original merits of different writers, he finds to be the greatest defects in the historical literature of the subject. For example, he thinks that Haeckel has far overstated the merits of Oken, who shines forth brightly in certain passages, but goes under a cloud in others. His own method is to get an estimate of each author as a whole before showing his connexion with the idea in individual and isolated points. To take two other instances, Krause has placed Erasmus Darwin over Lamarck without sufficient consideration, and Huxley has treated Treviranus and Lamarck with almost equal respect, while it is Professor Osborn's opinion that Treviranus in spite of his high merits is hardly to be compared with Lamarck, so far as real solid contributions to the modern ideas of evolution are concerned.

In the Introduction we have an outline of the whole development of the evolution idea. Taking Bacon's dictum regarding the anticipation and interpretation of nature as his guide the author finds the following stages in the discovery of the law, to-wit: (1) The anticipation of nature—Greek evolution—which beginning with the old Greek physiologers continues through Arabic philosophy to mediæval Christian theology; (2) the interpretation of nature—modern evolution—exhibited in the emancipation of botany and zoölogy from Greek traditions and in the speculations of the philosophers of the seventeenth and eighteenth centuries; (3) modern inductive evolution which embraces two periods, that from Buffon and St. Hilaire, marked by the rapid extension of the natural sciences, and that of Darwin and Wallace, when evolution is established inductively and deductively as a law of nature.

The early Greeks were mainly deductive or *a priori* in their scientific method. This also characterised mediæval and even modern thought upon evolution. The facts strangely contradict the current views of the history of this idea. The very men who recommended induction practised it least successfully. Some early Christian Fathers were more liberal and rational than some very modern precursors of evolution. Augustine ridiculed the error of searching the Scriptures for laws of nature, and gave a broad and modern interpretation of the first chapter of Genesis, whilst the theory of special creation, which, we might say, he rejected, was held by eminent naturalists as late as the nineteenth century. The accumulation of the natural evidences of evolution, which fell mainly in the third period, was the work of centuries. First came correct ideas of structure or comparative morphology, then the knowledge of function or physiology, then true ideas of individual development

or embryology, finally, natural environment began to be studied and the facts of distribution, and with all grew palæontology. Analogy, homology, adaptation, degeneration were noticed, and lastly, but chiefly, the doctrine of abiogenesis which formed one of the greatest impediments to the growth of the true evolution idea, was overthrown, and natural causation substituted for supernatural in the world of organisms.

Looking over the contributions of the Greeks to the idea of evolution, we find in Thales the idea of the aquatic or marine origin of life; in Anaximander, who is termed by Haeckel the prophet of Kant and Laplace in cosmogony, and of Lamarck and Darwin in biology, the dim notion of survival and persistence in difficult circumstances, and the doctrine of abiogenesis. In Anaximenes and Diogenes of Apollonia we discover the idea of a primordial terrestrial slime—the prototype of Oken's *Urschleim*—from which animals are directly derived abiogenetically. In the teachings of Empedocles is found the germ of the theory of the survival of the fittest or of natural selection. Empedocles modified the abiogenetic hypothesis, and adumbrated, so to speak, the following truths of modern evolution: "First, that the development of life was a gradual process; second, that plants were evolved before animals; third, that imperfect forms were gradually replaced (not succeeded) by perfect forms; fourth, that the natural cause of the production of perfect forms was the extinction of the imperfect." Empedocles's position on these matters is very important, and greatly influenced later thought. His view of adaptation as applicable only to organisms as a whole was extended by Democritus to embrace the adaptation of single structures in individual organs. We next come to Aristotle, who of all the ancients, and also of all inquirers till most recent times, showed the clearest insight into the nature of the problem of life. Aristotle's importance has been strangely overlooked, and it is one of Professor Osborn's chief claims to place him in his right light. Aristotle's knowledge of natural history was for his time marvellous; he may be said to have created the science. The centuries preceding him yielded nothing but vague speculation. "I find no basis prepared," he says. "No models to copy. Mine is the first step." "He was the first to conceive of a genetic series, and his conception of a single chain of evolution from the polyps to man was never fully replaced until the beginning of this century." He first studied lower types. He distinguished five hundred species of mammals, birds, and fishes. His biological essays show that he fully recognised analogies between the different organs, he perceived the unity of plan or type in certain classes of animals; he rightly conceived of life as the function of the organism, not as a separate principle; he anticipated Harvey's doctrine of epigenesis; he perceived the forces of hereditary transmission, of atavism or reversion, as also the principle of compensation of growth. Moreover, his main ideas upon evolution seem to have been drawn from observation. Aristotle believed in a complete gradation of nature, a progressive development corresponding with a progressive life of the soul. We have spoken of his chain of evolution beginning with polyps and end-

ing in man. The progressive development mentioned was affected by a sort of metaphysical principle which has not yet disappeared from science, and which in modern phraseology we should call an "internal perfecting tendency," which drives organisms progressively forward into more perfect types. Certain quoted passages contain, as Professor Osborn thinks, "absolute evidence that Aristotle had substantially the modern conception of the evolution of life, from a primordial, soft mass of living matter to the most perfect forms, and that even in these he believed evolution was incomplete, for they were progressing to higher forms." He combated Empedocles's suggestion of the survival of adapted and extinction of inadapted beings; had he accepted Empedocles's hypothesis, says Professor Osborn, he would have been the literal prophet of Darwinism.

There is little of interest in the subsequent ancient philosophers. Epicurus's chief merit is to have established the natural *versus* that of supernatural causation. Lucretius did nothing but restate the doctrines of Empedocles; we cannot speak of him as an evolutionist, "in the sense of gradual development by descent." Coming to the theologians, we find only in Gregory of Nyssa and in St. Augustine the attempt at a naturalistic interpretation of the order of creation. "The reaction against the scientific reading of Genesis came when Christian theology shook off Aristotelianism. . . . No advance whatever in a development of the evolution idea was made in this long period," which lasted until 1600, except among the Arabs.

In passing to what Professor Osborn calls the natural philosophers we reach the period of the rise of natural science in the sixteenth, seventeenth, and eighteenth centuries. Here we have three classes of writers, the "Naturalists," the "Speculative Evolutionists," and the "Natural Philosophers." The first built up the future materials of evolution-thought, the second promulgated only unsound metaphysical ideas, the third, including such men as Bacon, Descartes, Leibnitz, Hume, Kant, Lessing, Herder, and Schelling, really gave the modern methods of studying the evolution problem. They perceive the importance of the principle of variation, gradations of type, as also the necessity of a general evolution of life. We need not tarry long with these men, but only say a word of Kant. "The finest and the fullest expression of evolution in philosophical literature is found in Kant." In a famous passage in Kant, now well known, "we can trace the influence," says Professor Osborn, "of every earlier philosopher from Aristotle down, and recognise the problems which have faced every later one." Also in that giant of thought, Herder, we find much. "Herder clearly formulated the doctrine of *unity of type*, which prevailed among the evolutionists of the period immediately following."

The writings and achievements of the evolutionists of the eighteenth century are in the main familiar. Still, a few points may be noticed. Referring to the common overestimate of Oken as a prophet of modern evolution, Professor Osborn says; "In fact, when we analyse his contributions, we find that they actually represent the last survivals of Greek evolution with a veneer of eighteenth-century progress. When we read him through and through we see that he is about as



"truly an anachronism as old Claude Duret of 1609"—Claude Duret, who told the story of a tree in Scotland, from which falling leaves striking water on one side were transformed into fishes and striking land on the other were turned into birds. Charles Bonnet (1720-1793), though not an evolutionist, is remarkable as the author of the term. Strange to say, it meant then not evolution but something else, the term abiogenesis corresponding more to the meaning of the modern idea. Of the great naturalists, Linnæus was important merely as the founder of the "School of Facts," of which Cuvier was later the leader. The merit of Buffon, who "may be called the naturalist founder of the modern form of the evolution theory," was his suggestiveness. "He may be said to have asked all the questions which were to be answered in the course of the succeeding century." In Erasmus Darwin much of interest is found. For example, "the first clear and definite statement of the theory of the transmission of acquired characters considered as one of the factors of evolution."

Chapters V and VI of the work are entitled, respectively, "From Lamarck to St. Hilaire" and "Darwin." "Lamarck (1744-1829), as the founder of the complete modern theory of Descent, is the most prominent figure between Aristotle and Darwin." Professor Osborn's discussion of his achievements is full and fair. Goethe, too, comes in for an appreciative estimate, but Treviranus, the author thinks, is overrated, not going beyond Buffon and virtually taking the position held much earlier by Goethe. Of Darwin nothing need be said here. The author closes with these words: "It is for the future to determine whether the predecessors of Darwin and Darwin himself, in the principle to which he gave a life of thought, have fully answered the old, old problem, or whether we shall look for still another Newton in our philosophy of Nature."

In Professor Osborn's work, we gain a very fair idea of the movement of the evolution idea and of its significance, and it may be cordially recommended to those who wish to obtain a preliminary survey of the subject. It is remarkably free from typographical errors<sup>1</sup> which is very important in such a work, and is printed on good paper in a fine, large type. It is to be hoped that the works which follow it will be as useful and interesting.

T. J. McC.

AMPHIOXUS AND THE ANCESTRY OF THE VERTEBRATES. By Arthur Willey, B. Sc.

With a Preface by Henry Fairfield Osborn. New York and London: Macmillan & Co. 1894. Pp., 316. Price, \$2.50.

The present treatise constitutes the second volume of the Columbia University Biological Series, opened by Professor Osborn's *History of the Evolution Idea*, and although of a technical and special nature, is, by the subject which it treats, of high general interest and importance. That subject is the ancestry of the vertebrates

<sup>1</sup>On page 113 the author refers to a paper of Maupertuis on "The Conservation of Energy Doctrine." Maupertuis never considered that subject; what is meant is the principle of least action.



from the point of view of the anatomy and development of *Amphioxus lanceolatus*. This little animal, varying from two to three inches in length, is the actual living realisation of the ideal imaginary representative of the primitive vertebrate, almost identical with the archetypal form supposed by evolutionists. "It is interesting," says Mr. Willey, "as being one of the few animals that were not known to Aristotle, having been described and figured for the first time in 1778 by the German zoölogist Peter Simon Pallas." Its true nature, however, was not recognised until it was re-discovered in 1834 in the Mediterranean seas by the Italian naturalist, Gabriel Costa, who showed that it was a fish. The name of *Amphioxus* was first given to it by William Yarrell in 1836, Pallas having called it *Limax lanceolatus*, thinking it a species of slug. Yarrell first discovered the notochord of *Amphioxus* as a cartilaginous vertebral column. Finally, in 1841 three memoirs appeared independently on the anatomy of *Amphioxus*, which laid the foundation of our present knowledge. Their authors were John Goodsir of Edinburgh, Heinrich Rathke of Königsberg, and Johannes Müller of Berlin. The work of the last named author, universally recognised as the greatest physiologist of the nineteenth century, was a masterpiece. It was established by these researches that *Amphioxus* was allied to the Cyclostomata, but differed from them, according to Johannes Müller, to a greater extent than a fish differs from an Amphibian. It inhabits shallow, sandy shores, its food consisting almost entirely of microscopic plants and vegetable debris. Its extreme shyness to a bright and sudden light is remarkable, being "probably correlated with the presence of black pigment spots in the nerve-cord." It occurs in astonishing abundance in the extensive salt-water pools near Messina, less abundantly in more temperate regions, but is found in greater or less numbers in nearly all parts of the temperate and tropical world. Yet world-wide as this distribution is, there is only a single genus with some eight species. When we add to this the fact that it is a shore-dweller and not a roving pelagic animal, it is evident beyond dispute that we have in *Amphioxus* an immensely archaic form of vertebrate.

A few words on the anatomy of this remarkable creature will directly establish its significance. It has no specialised head, no skull, brain, or jaws; it is destitute alike of limbs, of a centralised heart, of a developed liver, kidneys, in short of most of the organs which usually belong to vertebrata. It has, however, a rudimentary backbone in the form of what is called the notochord. To be brief, it is almost as nearly allied to a worm as it is to a fish. Now what is permanent as a cartilaginous notochord in *Amphioxus* is transitory in the embryos of the higher vertebrates. In other respects, too, there is a correspondence between the early embryonic history of vertebrates and the permanent condition of *Amphioxus*. The link between the vertebrates and *Amphioxus* and between *Amphioxus* and the worms, as shown in *Balanoglossus*, an isolated type of this class, is almost perfect, forming a very strong piece of evidence for the derivation of the vertebrates from the worms. "For the present," says Mr. Willey, "we may conclude that the proximate ancestor of the vertebrates was a free-swimming animal intermediate in organisation between an

Ascidian tadpole and Amphioxus. . . . The ultimate or primordial ancestor of the Vertebrates would be a worm-like animal whose organisation was approximately on a level with that of the bilateral ancestors of the Echinoderms," or, to quote Professor Osborn, who writes the Preface to the work, "it stands as a persistent specialised but not degenerate type, perhaps not far from the true ancestral line of the Vertebrates."

Mr. Willey's work is exhaustive, at least it will appear so to the general reader ; but a glance at the bibliography appended to the work, containing six pages of reference in small print, will show that in fact it is only an introduction to this tremendous subject. "No single group," says Professor Osborn, referring to the Protochordates, "illustrates more beautifully the principles of transformism. . . . They alone [the Ascidians] give us a whole chapter in Darwinism." In fact no biological subject could be more fascinating. The problems presented are sketched in the Introduction. We shall mention only the problem of Dohrn, which is of more recent interest. "According to him," says Mr. Willey, "not only were the Vertebrates *not* descended from forms allied to the Ascidians and Amphioxus, but the latter were, by a process of almost infinite *degeneration*, derived or degenerated from the former. That the Ascidians are degenerate animals, to the extent that they have become adapted to a fixed habit of life, is of course obvious ; but that they have phylogenetically undergone the immeasurable degeneration which was postulated by Dohrn, is a view which is entirely unjustified by facts." The first two chapters are devoted to the anatomy of Amphioxus, the third to the development of Amphioxus, the fourth to a brief sketch of the structure and development of the typical Ascidians, and the fifth to a consideration of the more abstruse relationships of the lower Vertebrates or Protochordates. The work concludes with a series of considerations on the features of transition between the craniate vertebrates, the protochordates, and the invertebrates. With its notes, illustrations, full index, good press-work, and fine treatment of its subject, Mr. Willey's work upholds the reputation which the Columbia Biological Series has already won for high excellence.

T. J. McC.

THE RIDDLE OF THE UNIVERSE. Being an Attempt to Determine the First Principles of Metaphysic, Considered as an Inquiry Into the Conditions and Import of Consciousness. By *Edward Douglas Fawcett*. London : Edward Arnold. 1893. Pp., 440. Price, 14s.

"The object of this work is a Metaphysic which, stalking naked, but not 'ashamed, among current iconoclasm, shall proffer a definite though necessarily 'tentative, solution of the World-Riddle.' This solution the author hopes to expand in a future series of works. The present volume which forms a sort of prelude to the promised system is divided into two parts. "In Part I is presented a 'critical survey of the great landmarks in the history of modern philosophy, with 'a primary reference to their bearing on *metaphysical* (as opposed to merely psychological and other) inquiries. . . . Part II is constructive, a *development*, and, it is

"hoped, an extensive development, of Metaphysic out of the materials furnished by the great German masters. Incidentally Part II is critical, assailing: (a) the various phases of materialism, agnosticism, and current *destructive* idealism; (b) that too prevalent word-jugglery, termed by Schopenhauer 'University-philosophy,' where verbal erudition supplants insight, and dialectical chatter honest confrontation of the enigmas of life; (c) theology, and all metaphysic and ethic subservient to theology; (d) the defective side of modern mysticism," meaning by the "defective side" the aberrations of mysticism. In the constructive side of Part II are to be noted, to use the author's own list, "the treatment of the *crux* of the Individual Ego or Subject, the Subjective-Objective Idealism, the Monadology with its suggested amendments of Leibnitz and Herbart, the theories of Freedom and the relations of neurosis and psychosis, the exposition of the Universal Subject (including the synthesis of Atheism, Pantheism) and Theism, the answer to Pessimism and the riddle of Evil at large, the struggle for existence of Monads (as the metaphysical complement of Darwinism and *ἀνάγκη θεία* of the universe solving very numerous riddles), and the novel handling of palingenesis."

Mr. Fawcett writes a robust and picturesque style, at times almost verging on Orientalism. The vigor and the individuality of his expositions hold the attention of the reader throughout. It will be impossible for us within the brief space now at our disposal to do more than to refer to his chief positions. To criticise thoroughly his views would be to discuss the whole history of philosophy. We shall point out merely the idiosyncrasies of his views.

The method employed, not the only possible method, but still a very effective one, is called the "concrete metaphysical method," which is a "regress from the empirical in general to its grounds, thoroughgoing deduction of the empirical in detail from these grounds with the concrete ever in view." Concreteness, always concreteness, is its ideal. It is by the concrete method, not by abstractions, that the peak of the Absolute is to be scaled. The key to this philosophy is the "doctrine of a subject distinct from states of consciousness, though distinct in a way needing most careful treatment." Its initial formula "states of consciousness appear" is ultimately resolvable into "states of consciousness appear as content and revelation of a Subject,"—and that an *individual*, not a universal subject. "No Subject," Mr. Fawcett declares, "no flux of sensations in time; no Subject, no order of sensations in space; no Subject, no memory, no expectation; no Subject, no introspection; no Subject, no explicit I-reference." Now our states of consciousness have two sides—our mental consciousness and our object consciousness. This involves the problem of external perception which Mr. Fawcett attempts to solve "by a theory fusing the standpoints both of subjective and objective idealism." In this connexion a doctrine of Monadology is developed, which is the core and pride of Mr. Fawcett's philosophy. A monad is "a unitary individual centre of consciousness, actual or potential." Although applicable, as Mr. Fawcett thinks, and fit to replace the complicated and self-contradictory atomic theories of physics

and chemistry, in this place it is applied only to the solution of the general metaphysical problem. In the first place, we have a Universal Subject, called the Metaconsciousness. In this subject the monads are grounded, by it they are connected, although individually they are discreet and self-contained centres. In themselves the monads are subject simply to changes of state; but as upheld in the Universal Subject free interactions must be posited of them. In this interplay, in this interpenetration of the monads, the solution of the various problems is reached, including, of course, that of telepathy, and the possibility of mysticism.

It remains only to indicate Mr. Fawcett's solution of the problem of God, his reply to pessimism, and his theory of palingenesis. His view of God "constitutes a synthesis of the standpoints of Atheism, Pantheism, Theism, and even Agnosticism." Deity is found to emerge from the gloom of the Metaconscious, the Metaconscious being the black spiritual *prius* in which all the monads are immanent. "The God of Absolutism is all that is, ever was, or ever shall be—a unity of interpenetrative individuals who have bought their glory by suffering." According to Mr Fawcett, the foundation of pessimism is a fact; "the reply to pessimism must hinge on the report we may be able to return of the individual's prospect beyond the grave. . . . *The fact is that, here as elsewhere, human ideals, unless they are to bear rich fruit in 'another world,' are a cheat of the emptiest nature.*" That other world is the future, for monads are immortal. "The Good, after all, must be fated to emerge from this torment. Hail, then, to the unborn future! The pains of the world accumulate *behind* us, but the banqueting-day, the revels of a Deity, are *ahead*." Again, pain and pleasure are the lieutenants of the Metaconscious. . . . Pain and pleasure are, broadly speaking, the servants of the animal body." The indictment of pessimism cannot be answered, unless we believe that consciousness persists. "*Persistence of individuals as conscious is deducible from the belief in the self-realising Metaconscious previously vindicated.*" Now this persistence takes the form of palingenesis. The humblest atom-m Monad undergoes a ceaseless palingenesis. Just as the hydrogen-m Monad takes different states in different combinations, so the human monad enters into "rebirths." This doctrine of palingenesis throws new light on many phases of the ethical problem, and has been hinted at in various religious systems and philosophies.

To sum up, in individual monads "now blazing with the light of consciousness, now withdrawing into darkness," are laid the foundations of reality. "The Individual is the only concrete, and should dwarf all else whatever." μκρκ.

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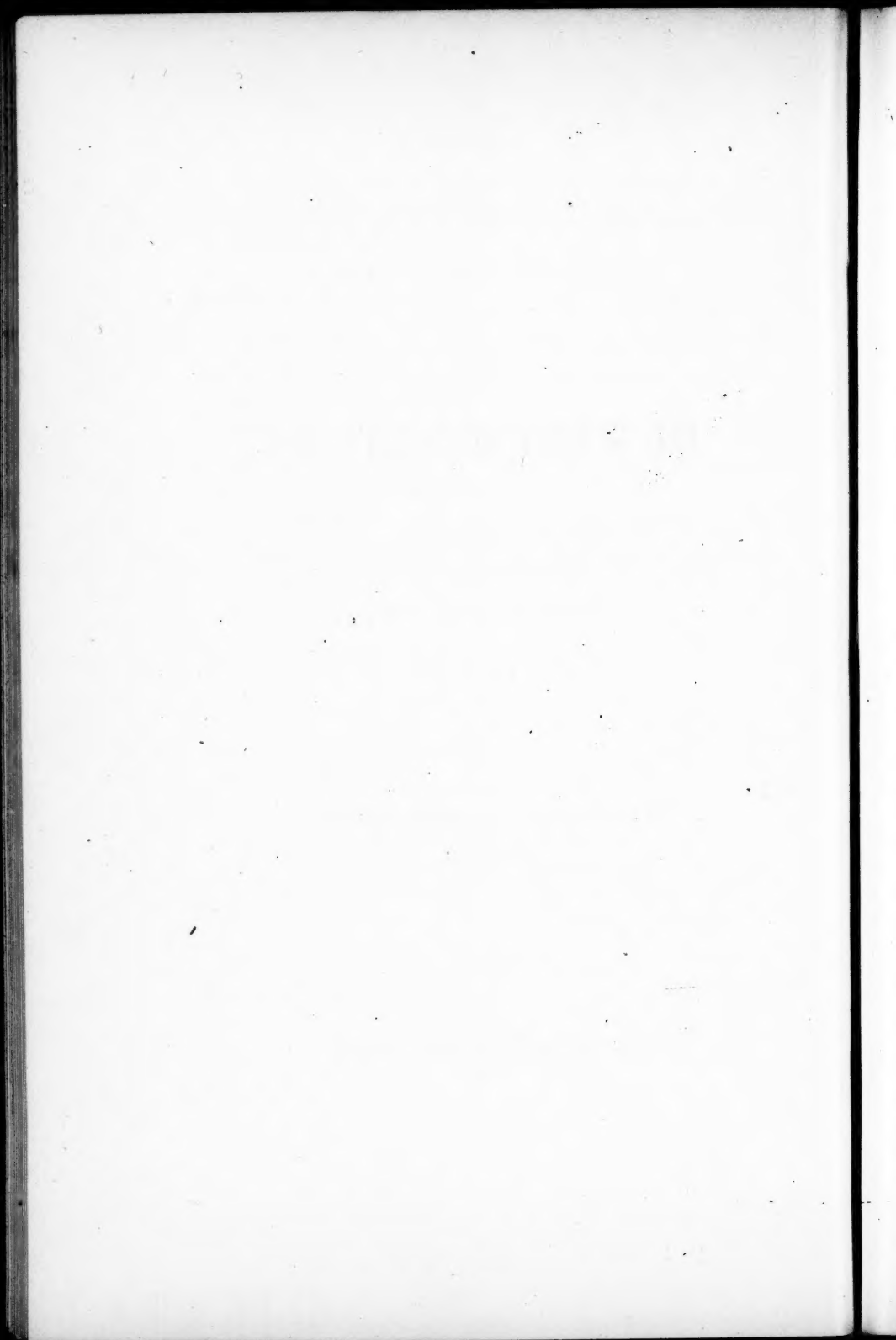
CHARLES ALVA LANE

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THE ORIGINAL APPEARED IN "PHILOSOPHISCHE MONATSHEFTE,  
VOL. XXX, NOS. 5 AND 6.

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CHICAGO:  
THE OPEN COURT PUBLISHING COMPANY  
1895



## DE RERUM NATURA.

### I. THE PROBLEM.

WHEN thought, to comprehend the universe  
Strains outward, holy awe enthrills the soul.  
With reverence only dare we lift the eye  
To front the congregation of the worlds,—  
The All of life, ensouling suns and motes,  
That since the measureless eternities,  
Obedient to the cosmoplastic laws,  
In rhythmic throes of palingenesis,  
Creates new worlds of those destroyed. With awe  
O Cosmos! doth he contemplate thy ways  
Whose peering glass surveys the teeming heaven.  
Before the mystery that in thee lives  
Bewildered stands the grey philosopher.  
Thou like the ocean art, from whose abyss  
Wave upon wave majestically swells  
To sink again adown the darksome sea.

Upon thy bank, Ocean of Worlds, behold  
The poet musing stands! What longings stir  
His dreamy heart! and as in prayer, the soul

With full devotion rings harmoniously!  
Yet through his hallowed mood of worship jars  
The discord of the doubter's questionings :  
"And wilt thou venture it, th' impossible,  
"To celebrate in song the infinite?  
"How shalt thou praise the universe, forsooth,  
"On which millenniums have tired themselves  
"With probings after truth? The Sciences  
"A pæan are, whose cadences unfold  
"In richer numbers than thy harp can yield—  
"A hymn whose notes seraphic are the souls  
"Who loftiest rise from out humanity."

Yea, but emotions yearn for utterance  
When I the order contemplate which rules,  
And with unfailing, sleepless law the love  
And hatred sways of atoms numberless,—  
The order that enthralleth every part  
To service of the whole, till nebulas  
To systems grow of constellated worlds,—  
The order, too, whose governance directs  
The budding race of cells to unity,  
Allotting so the labor of the whole,  
That organisms deftly shape themselves.

"And this thou laudest?" 'rose the bitter voice  
That fain the poet's cosmic psalm would hush,  
"Forget not then how Justice smiteth him  
"Who, finding not his duty to the whole,

"In restive selfhood shirks. Inexorably  
"The guiltless with the guilty feel the smart."

That know I well, for life hath shown to me  
How much of misery the heart may hold.  
Ay, every effort is with grief entwined  
And anxious care. Without the battle's brunt,  
No victory; and every conflict brings  
Its wounds. But lo! a goal forever lures  
And woos the weariness of toiling feet  
Around a centre dreamed of, but unseen.  
I know it well, yet have I also found  
That pain's tuition is ennobling life,  
And our endeavor gives to toil its worth.  
In equal measure Nature suffering doles  
With pleasure's sweetening apportionment;  
And only he who lives is doomed to die.  
And this is justice, therefore murmur not.  
An even risk all preference besets.  
With equity's unbending sternness ever  
And with impartial love are we embraced.  
The burden must be sore that winneth worth.  
Yet what thou suff'rest in the press of strife,  
Thou must submit to for humanity  
Which liveth in thy heart, inspiring thee  
The goal to win that shimmers to thy dream,  
And goading thee life's mysteries to solve.  
When I the nameless misery behold  
That trembles through the individual soul,

And though my work in idle piecemeal lay,  
I upward look and consolation seek  
In cosmic Unity's eternal bliss.  
Then hope, a-yearn within my bosom, saith :  
Lo, every dissonance must be attuned  
If thou the pulsing harmony wouldst hear  
That swelleth from the chorded galaxies.

Let not the insufficiency of self  
Mislead : being a part, thou serv'st the whole.  
Permit not that thy aspirations flag,  
Of weariness and tribulation galled.  
When in death's agony thy heart must break,  
When day declines and light of consciousness,  
Do not, O heart, despair ! for thou remainest  
Within the bosom of the All. The stream  
That finds the sea meets not extinction there.  
In transitoriness is life accursed ;  
But transient, too, are all our cares and griefs.  
When silence darkens round the failing breath  
The evils vanish that disquiet us,  
And death, life's holy consummation, brings  
The benison of immortality.

## II. THE SOUL.

Here am I, imaged in the glass of Self,  
And eager in desire to dare and do.  
Life, warm and pulsing, tingles in my veins,  
And restlessly thought's lightning flashes dart.  
Pause thee, O Soul, and think upon thyself !  
What art thou, then, and whence dost darkling come?  
What goal is luring, and the purpose what  
That to thy strivings consecration gives?  
Declare thy nature to thyself, O Soul,  
And read thy features in awareness traced.

Kaleidoscopic splendors haunt mine eye,  
Picturing ambient Nature's shifting shapes,  
And through mine ear pierce tonal messages.  
Each sense its typical investment weaves,  
Which, wrapt in mem'ry's immortality,  
Shall rise anon like Lazarus untombed.  
From out commercing excitations, bred  
Of interfused sensations manifold,  
The staple forms of concepts crystallise,  
To union drawn by psychic kindredship.  
As thought with kindred thought conjoins, behold  
How lucid grows the rising realm of mind !  
The restlessness which here for action yearns,  
Gains aim and purpose ; regulated are



The tangled contraries of promptings wild  
In calm tranquillity of self-control.

What wildering manifoldness ! yet how all  
In multitudinous unity entwined,  
Creates the glorious fashion of the soul !  
And this I call my Self. What cadencing  
Of tones ! what odor-sensing ! what rare life !  
And all, yea all, hath meaning : what befalls  
Denoteth streams and forests and the stars,  
Denoteth brothers, joys and racking pains,  
Denoteth struggle, wrath and enemies.  
The pictures and ideas symbols are  
Revealing to the Self its own Beyond.

Beyond I hear the clangor of the world ;  
But only in myself the voices range.  
Beyond, a glim'ring panorama lures ;  
But in mine eye the compassed picture lies.  
Thus ever do a thousand subtle threads  
Me intercatenate with that strange world  
Wherein I move. I contemplate the Vision :  
Of me it is a part. I am the All ;  
Yet that somewhat which into self hath grown  
Is of the world a part : This bides, I pass.  
But lo ! e'en then, in that which unto me  
The not-I seemed, I evermore endure.

Erewhile I came to birth ; the gathered lore  
Of tome and sense and life's wide school I've sought.

Declare my place or ever life I knew.  
Am I from nothing come, to lapse again  
Into nonentity? Nay, into form  
Have I been fashioned, and the mould I know  
Wherein the features of my Self were wrought.  
Not from the blank Inane emerged the soul :  
A sacred treasury it is of dreams  
And deeds that built the present from the past,  
Adding thereto its own experiences.  
Ancestral lives are seeing in mine eyes,  
Their hearing listeneth within mine ears,  
And in my hand their strength is plied again.  
Speech came, a rich consignment from the past,  
Each word aglow with wondrous spirit life,  
Thus building up my soul of myriad souls.

I call that something "I" which seems my soul ;  
Yet more the spirit is than ego holds.  
For lo ! this ego, where shall it be sought ?  
I'm wont to say "I see" ; yet 'tis the eye  
That sees, and seeing, kind'leth in the thought  
The beaming images of memory.  
"I hear" we say: Hearing is of the ear ;  
And where the caught word stirs, there cords resound  
Of slumb'ring sentiment ; and echoes wake  
Of sounds that long ago to silence lapsed.  
Not dead, perfected only, is the past ;  
And ever from the darkness of the grave  
It rises to rejuvenated life.

The "I" is but a name to clothe withal  
The clustered mass that now my being forms.  
Take not the symbol for reality—  
The transient for th' eterne. Mine ego, lo!  
'Tis but my spirit's scintillating play  
This fluctuant moment of eternities  
That now are crossing where my heart's blood beats.  
I was not, am, and soon will pass. But never  
My soul shall cease; the breeding ages aye  
Shall know its life. All that the past bequeathed,  
And all that life hath added unto me,  
This shall endure in immortality.

And if the welling spring of spirit-life  
I seek, where but in Nature is it found—  
In that great All whose tiny part I am?  
Yea, holy Nature stampeth into me  
Its being's galaxy of wondrous forms;  
Thus after its own likeness fash'ning me.

Something there is eternal in the world  
Of change, in all the tides of motion moveless.  
Law? God? the Logos wouldst thou call it, which  
From the beginning was? Name as thou wilt:  
In ceaseless flux it faithful to itself  
Remains, ubiquitous, determining all  
In unavoidable necessity.  
When I in order would the chaos set  
Of inexhaustible experiences

Reflected in the facets of the sense,  
This calm unchanging entity I seek,  
And trace my bearings in the restless world.  
Th' eternal Voice in reason echoeth,  
Which like a compass in our voyagings,  
Directs thro' oceans unexplored.

Great All !

O, thou all-comprehensive infinite !  
In no ambiguous language speakest thou,  
In no uncertain promptings teachest duty.  
Thy governance doth in the atom live,  
And in the spheric courses of the stars.  
Thou fountain whence the beauteous Order springs !  
To thee, too, sentient creatures owe their being,  
Whom thy warm breath ennobling quickeneth.  
Here potent aspirations upward yearn,  
As spurning nature's lowly elements.  
Thou formest in the soul an empire new  
Where thou thy dispensation dost portray.  
Thou givest light, and following its gleam,  
We grope for paths of truth. Thou art the judge,  
And thou the measure, too, of justice art.  
In thee all motion of becoming is ;  
In thee its motive and its purpose rule.  
What from thee springs not alien is to thee ;  
And life in thee its only aim can find.  
Thy breath it is which warmly thro' it thrills ;  
It is thy light that gloweth in the soul.

Into undreamed-of fathoms of thy depth,  
O great Creator-power !—into thy bosom  
Shall man return. Restless in life, in thee  
He finds the holy, termless rest again.

Yea, in this rest which doth remain to us  
As life's last aim and refuge evermore—  
In this great glory of release from self,  
This blissful apotheosis of life,  
In this which never was not, and shall be—  
Th' immutable amid the changeful All,—  
In this my soul its bidding-place shall find.  
Thus all my deeds, my pains, my strivings here  
With confidence are shaded. This holy spell  
Which haunts presagefully the yearning world,  
Shall strength amidst my toilings bring to me ;  
To brother-love shall rouse and charity ;  
To benedictions on my foes shall prompt ;  
In fortune it shall cheer, in sorrow soothe ;  
The key to all the riddles it shall yield  
Which compass me about ; shall show the light  
Wherein life's tragedies transfigured glow ;  
To thought such vast interpretations it  
Shall lend, that Nature's tones will all accord ;  
That hatred will in love be overwhelmed,  
And rapturous fruition compensate  
For all the pains our upward-strivings bring.  
This source of spirit-life, in death's despite,  
Holds heritage of immortality.

## III. THE ALL.

Not dead is matter, though inert it seem.  
A hidden life ensouls the eternal mass,  
Which ever into quickened forms evolves.  
Think not that spirit-germs consignments are  
From alien realms of transcendental being :  
In matter immanent, their nascent life,  
From ancient darkness struggling, seeks the day.  
Divinely noble thought, the crowning flower  
That on the World-tree grows, concealed hath lain  
Within vivific virtues of its root.  
An upward impulse penetrates the All,  
And nothing is that aspiration lacks.

The torture of the longing who can gauge  
That calleth ever out of gravity  
For tactual companionship's caress ?  
Who knows how congregated atoms thrill  
With love's delight, e'en where our feeble eye  
But dust in stark inertness contemplates ?

Thus slowly through the fathomless expanse,  
In isolated desolation, drift  
The ancient fragments of disrupted worlds ;  
When lo ! from out the neighb'ring fields of space,  
The silver wooings of our sun are flashed.

The errant atoms wax in their desires ;  
And fleeter, ever fleeter, sunward speeding,  
They kindle into mystic comet-fire,  
Whose flame our far-off firmament reflects.  
Dismayed are all the superstitious tribe  
Of frightened folk. Of war and pestilence  
False prophets prate, of famine and distress,  
And eke the fronting hour of final doom.  
Only with gladness thrills the tipler's heart  
In fancied foretaste of the comet's touch  
Upon the favored season's vintage cast.  
But from the world's commotion all aloof,  
The astronomer, with raptured vision, stands  
And marks the midnight's fiery wanderer.  
The spectrum catches tokens from his light  
Of elemental kindredship with earth,  
And fancy hints of ancient dwellers there.  
With eager glass the astronomer attends  
The trav'ller's sun surrounding course, and maps  
With careful scale, the leadings of the path  
That outward bears to distant voids again.  
With flagging pace and breath that wanes of fire,  
The lonely wand'rer wends. But in his heart  
A dream of resurrection sleeps. What time  
He yearneth for a larger life, whereto  
His single power cannot attain, behold  
From distant scopes, where universes teem,  
An errant comrade, as by chance appears.  
By gravitation's mutual greetings lured,



They quit their courses, and, with gath'ring speed,  
Impetuous to collision rush. Space pulses  
With awful thunders where they meet, and night  
Is raptured with a dream of fire. And now,  
With gravitative searchings through the Vast  
Their doubled mass, with wider ordinance,  
More night-embosomed comets summons forth.  
Responding spaces yield their homeless broods.  
With wild delight from every side they rush,  
And glowing in their passionate embrace,  
Illumine flamingly the regions round.

O Light, in beauty's holy guise begot  
Through atom-motions kissing in their play!  
Art thou requited love's surprising child?  
Or art thou of the progeny of war  
Whose passion, wrought to zeal igniferous,  
Dissolveth all to fiery turbulence  
Of gaseous hurricanes a-whirl? Perhaps  
We greet thee best as toil-engendered boon;  
For, after wanderings orderless and dark,  
A common will the meeting atoms ply;  
Their immemorial desires at length  
To candent life in quick fruition flash,  
Burning the night from space.

There still prevails  
A chaos wild of contravening storms:  
The fiery masses interpenetrant

Are seething as in Bacchic revelry.  
Wider and wider in their mazy gyres  
The glowing circles spin, till lo ! at last  
Their currents mix in one vast vortex-whirl  
To mould anon a pageantry of worlds.  
Amid the chaos infant Order breathes.  
In swift revolency the planets sweep  
As fiery spheres about the central sun,  
Whose sovereignty as vassals they obey.  
But where the cooling surface darkens round,  
Impending vapors loose their liquid stores ;  
Seas surge with thund'rous tides against the rocks,  
And over all an airy heaven hangs.

Albeit the elements divided are,  
For closer union evermore they strive,  
And where, in faithful love connubial  
They blend, cells quicken in the pregnant sod.  
The tender germs unfold their gath'ring life  
And teem a myriad hordes, after their kind.  
The promptings of affinity beget  
A living growth of co-aptative forms,  
Where, with reciprocative laborings  
Of complementary functions, they may move  
With nobler rule amid the elements.  
A higher life is piercing into being :  
From night's sensationless rigidity,  
Precursor of a spiritual day,  
The kindling light of consciousness doth gleam.

The multiplying tribes of living forms,  
In struggle for existence, ever toil,  
Till all the world a plain of battle grows,  
Creature to creature dealing doom of death,  
For hunger's or for passion's goading sake.  
But keener and of larger use the sway  
Of whetted powers becomes that ply the strife;  
And ever the appropriated gain,  
In stern heredity's bequeathment held,  
From generation unto generation,  
Following fast, is yielded to the years;  
And though for rest a-yearn, the failing lives  
Of ancient ages lapsed to death's dark realm,  
Their aspirations and their toils endure:  
The soul of all their being liveth yet  
In lives their lives projected hitherward.

The soul's day breaketh. Consciousness appears  
With clearing light, and Reason learns at last  
Her powers to marshal and her realms to rule.  
In pleasing modulations language rings,  
Like speech of gods, to ears initiate. Here  
The poets find their rhythmic ravishment;  
Here, too, desire, for knowledge all athirst,  
In never-sating draughts her fever feeds;  
And, borrowing illumination here,  
Abyssmal depths the spirit penetrates,  
Where, wrapt in mystic silences and glooms,  
The slumb'ring secrets of creation lie.

Transfiguring th' unfolding universe,  
Cognition's sunbeams spread and glow.  
They bring to ignorance, whose feeble eyes,  
By superstition's lowering clouds are dimmed,  
A lore assuasive of celestial truth ;  
And unto error's night, that, prison-like,  
Encompasseth th' aspiring soul of man,  
The promise of deliverance they bear  
From false illusion's lures and mockeries.

O holy sun, in all the circling host  
Of bleak and darkened worlds, with touch benign  
Light, warmth, and thrilling life awakening,  
Thyself for others willingly thou givest  
In sacrifice, and pourest forth thy gifts  
Unstintedly to all the needful worlds ;  
Nor reckest thou if thanks thy largess greet,  
If ingrate fools reject thine offering,  
Or evil-doers warp its sacred use.  
For others dost thou live, for others die.  
So he that would the world illumine gives  
Himself, his heart-blood freely yielding up.  
The thorny crown resignedly he wears ;  
The martyr's scourging suffers and the taunts,  
And on the cross finds ignominious death.  
For this the glorious radiance of his life  
Longeth again to find the ancient night.  
For all the world it offered up itself,  
And findeth in surcease of labor peace.

As wintry years around the cooling sun  
Fold darkening, life faileth on the worlds.  
An arctic desolation everywhere  
To heedless heavens appeals despairingly.  
The wedging frosts dispart the shapely spheres,  
And drifting fragments mark the erstwhile worlds.  
With widening distances space presses in  
The sundered masses to estrange, till lo !  
Across the voids as comet-forms they range.

But as the morning ever wakes the eyes  
Whose weariness the evening sealed with sleep ;  
As never life the doom of death can thwart,  
(Though genial resurgence foils the tomb  
With life rejuvenised in serial birth) ;  
As night and day, in alternating layers,  
From time unfold : so too the world respires :  
The tides of life in rhythmic surges rise,  
Ever to ebb in restless billows back  
Where call the soundless Deepes ; then upward heave  
With gathered stress of nobler life again.  
Thus ever from the grave is life redeemed,  
And ruins wake to spheres regenerate,  
Gemming the circle of eternity  
With threaded universes evermore.

